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ABSTRACT

One of four curriculum guides designed to aid teachers of grades K-9 in implementing a balanced, dynamic traffic safety program, this level D guide contains materials for teachers of grades 7-9. Emphasis is on preparation for the driving task and content is in three units. More sophisitcated approaches to pedestrian, bicycle, and school bus safety, plus an optional farm vehicle section, are presented in the first unit (grade 7). The second unit, presented in grade 8, deals with the history of the automobile, automotive safety devices, trip planning, and other activities focusing on the driver's responsibilities. The ninth grade unit deals directly with preparation for driver education with attitude clarification and formation emphasized. Each unit is divided into concepts or general topics for discussion with each topic including lists of behavioral objectives, a content outline, material to use as background information, and suggested activities (some of them action projects). Also included are artwork and other worksheets for use as reproduction masters and resource lists for each section. Materials for a driving awareness game are appended. (Metric measurements are used in this guide.) (TA)

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ED140087

PROFESSIONAL GUIDE

K-9 TRAFFIC SAFETY RESOURCE CURRICULUM

LEVEL D

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EDUCATION & WELFARE
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State of North Carolina
Department of Public Instruction

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June 1975

CE 011 531

TABLE OF CONTENTS

Page

Preface v
To the Teacher vii
Note on the Metric System xi
Traffic Safety Information Officers xv
Credit To xvii

Traffic Safety - Level D

Table of Contents 2
List of Masters 4
Introduction 6

Pedestrian Safety

Teacher Information 8
Unit Outline 9
Unit Concepts 10

Bicycle Safety

Teacher Information 35
Unit Outline 36
Unit Concepts 37

School Bus Safety

Teacher Information 130
Activities 133

Farm Vehicle Safety

Unit Outline 141
Unit Concepts 142
Resource Lists 151

Predriver Education - Level D

Table of Contents 164
List of Masters 166
Introduction 167

Review - Pedestrian and Bicycle Safety

Teacher Information 170
Activities 173

History of the Automobile

Teacher Information 186
Activities 187

Automotive Safety Features

Unit Outline 205

Unit Concepts:

I. Automotive Safety Features 206
II. The Function of Safety Belts 212
III. Passenger Responsibilities 226

Trip Preparation

Unit Outline 231

Unit Concepts:

I. Map Reading Skills 232
II. Planning a Trip 236
III. Emergency Procedures 240

Traffic Signs, Signals, and Markings

Concepts Content 249
Activities 251

Motorcycle Safety

- Unit Outline 267
- Unit Concepts:
  - I. Causes of Motorcycle Accidents 268
  - II. Limitations of a Motorcycle 271
  - III. Types of Motorized Cycles 276
  - IV. Parts of Motorized Cycles 280
  - V. Preride Checks and Preventive Maintenance 283
  - VI. On-the-Road Motorcycling 286
  - VII. On-the-Trail Motorcycling 292
- Action Projects 296

Just for Fun
Resource Lists 325

Getting Ready for the Road - Level D

Table of Contents 336
List of Masters 338
Introduction 339

Driver Licensing

- Unit Outline 344
- Unit Concepts:
  - I. Getting Your License 344
  - II. What Kind of License 348
  - III. The Purpose of Driver Licensing 354

The Highway Transportation System

- Unit Outline 359
- Unit Concepts:
  - I. Intro - The Highway Transportation System 360
  - II. The Environment - Roadway Types 363
  - III. The Vehicles - Special Characteristics 371
  - IV. The People - Three Types of Pedestrians 374
  - V. What Makes the System Go? - HTS Management 381

Driving Skills

- Unit Outline 387
- Unit Concepts:
  - I. Introduction to IPDE 388
  - II. Identifying 390
  - III. Predicting 398
  - IV. What Clues Help You Predict 402
  - V. Making Decisions 406
  - VI. Deciding at Intersections 410
  - VII. Right of Way Laws 412
  - VIII. Following Distances 416
  - IX. Execution 426
  - X. Culminating Activities 430

Self-Evaluation of Driving Attitudes

- Teacher Information 443
- Activities 445

Just for Fun
Resource Lists 468

PREFACE

North Carolina's K-9 Traffic Safety Resource Curriculum is a key element in a total program designed to reduce casualties on North Carolina's highways. Recognizing the societal problem represented by 3,500 pedestrians and bicyclists killed and injured annually in North Carolina, the Governor's Highway Safety Program (GHSP) has developed an eight-point plan to increase pedestrian and bicycle traffic safety. The first steps in this plan involve the preparation of guidelines for implementing State and community programs which address the problem in the areas of community planning, highway and traffic engineering, traffic enforcement, and public information and education.

Because approximately 50 percent of the pedestrians and bicyclists killed or injured is under 15 years of age, emphasis is being given to a timely, viable curriculum for K-9 which incorporates pedestrian, bicycle, passenger, and motorcycle safety and preparation for driver education.

North Carolina's K-9 Traffic Safety Resource Curriculum has been prepared under sponsorship of GHSP by the Research Triangle Institute with the assistance of Appalachian State University, East Carolina University, the University of North Carolina Highway Safety Research Center, and the National Safety Council. Valuable assistance was provided by an Advisory Committee on Traffic Safety Curriculum established by the Department of Public Instruction. Teachers and school administrators from Asheville city, Buncombe County, Greenville city, and Pitt County school systems participated in a series of developmental workshops which provided meaningful guidance in formulating instructional techniques and concepts.

The goal of this Professional Guide is to provide a useful resource to aid teachers in implementing a balanced, dynamic traffic safety program responsive to the needs of the young people of North Carolina.

TO THE TEACHER

You may be wondering what place traffic safety education has in your classroom. This Professional Guide to K-9 Traffic Safety Resource Curriculum offers valuable experiences to both you and your students. Through traffic safety education, you may help your students develop many important skills with which to deal with the world. Concerns for human life and the well-being of your students necessitate the introduction of a well-balanced, integrated traffic safety program into the schools of North Carolina. Approximately half of North Carolina's pedestrian and bicycle fatalities and injuries involves persons under 15 years of age: That is about 1,750 deaths and injuries a year. Traffic safety education can help reduce these casualties. It can also offer your students added insight into their relationship with the environment, and increase their self-confidence in dealing with the world by strengthing their ability to make informed judgments.

What is safety education? Safety education is the development of a sense of responsibility for oneself and others. This sense of responsibility can develop into a lifestyle which involves thinking ahead, identifying and assessing risks, and making informed, responsible decisions for safe behavior. For kindergarten children, this may mean simple learning to recognize and obey a signal light and watching out for themselves in a traffic situation. For young teenagers, it may be expressed as a concern for others and a sense of involvement in the well-being of their community.

How can you, the teacher, foster these attitudes and behaviors in your students? Each student has certain needs which must be fulfilled if he is to learn to think for himself and to behave safely. These needs include:

1. A Sense of How the Student Relates to the Traffic Environment. This includes an understanding of how the student as a pedestrian, a bicyclist, or a passenger relates to drivers.
2. Information about the Traffic Environment. The student needs to recognize and understand traffic signs, signals, and markings. Knowledge of what others expect of him--for example, knowledge of

the Rules of the Road--is helpful.

3. The Ability to Identify and Assess Hazards. What is an accident? The very term connotes an act of pure chance. But is this the true definition as it relates to traffic safety? Discuss this with your students. An accident is an unintended event which results in damage or injury, but most accidents are caused by a series of misjudgments. Students need to explore the causal relationships in accidents and to learn to identify behaviors which are likely to result in accidents.
4. Knowledge of How to Avoid or Handle Hazardous Situations. The student needs to identify alternative actions which produce safe results, as well as to practice safe, responsible behaviors. These needs include practice in motor and perceptual skills.
5. A Positive Attitude toward Safety. The student needs to develop a positive feeling about turning down unreasonable risks. Acting safely means thinking ahead and acting in one's best interest. The student should be led to consider such questions as: Is it smart to act safely? Why do people take unreasonable or irresponsible risks? Your attitude as the teacher will have a tremendous effect upon the attitudes of your students. Your creativity and your enthusiasm in presenting safety habits as part of an affirmative lifestyle can make the program a success. Your actions in the classroom which show you believe safety is an important goal will influence the formation of responsibility in your students.

Total Program Organization

The K-9 Traffic Safety Resource Curriculum is divided into four groups of grade levels.

Level A - Level A corresponds approximately to the K-1 grade levels. Little or no reading skill is required. Units in pedestrian, bicycle, school bus, and passenger safety are presented. Emphasis is placed on development of perceptual skills, especially in regard to pedestrian safety.

Level B - Level B is aimed at second and third graders. Pedestrian, bicycle, school bus, and passenger safety units are included. Perceptual and judgmental skills are again emphasized. Bicycle safety becomes extremely important, since this is the age at which most youngsters begin driving their bicycles on the street.

Level C - Level C corresponds to the 4-5-6 grade levels. Units in pedestrian, bicycle, school bus, and passenger safety are presented, and minicycle and optional farm vehicle safety units are introduced. The scope of all units is widened to include activities in which students can reach out into the community to investigate and express their concern for the safety of others as well as themselves. Activities include indepth identification of hazards, and opportunities for problem solving and exploration of attitudes. The natural laws which affect vehicles and pedestrians are also presented.

Level D - The structure of Level D, prepared for grades 7-9, differs from that of the elementary units. The emphasis in Level D is on preparation for the driving task. Three units are presented. The first in the series (grade 7) presents more sophisticated approaches to pedestrian, bicycle, and school bus safety, plus an optional section on farm vehicles. The second unit, presented in the eighth grade, deals with the history of the automobile, automotive safety devices, trip planning, and other activities which begin changing the student's focus of concern to the driver's responsibilities. Action projects are suggested which would allow the students to apply their talents and safety knowledge to benefit the school and the community. The third unit deals directly with preparation for driver education. The highway transportation system and the relationships of the individual driver, pedestrian, and others to the system are explored. The students explore the mental and physical factors important to safe behavior behind the wheel. Attitude clarification and formation are emphasized.

Curriculum Structure

The material in Level D is divided into sections for the seventh, eighth, and ninth grade student. These levels are approximate--draw from any section according to the needs and abilities of your students.

The ninth grade section, however, deals specifically with preparation for driver training and may be too advanced for seventh and eighth grades.

Each section is divided into resource units which delineate general areas of study. Each unit is divided into concepts or general topics for discussion. An outline of the unit is provided. A concept consists of one or two pages of content and, on the facing page, lists of objectives and suggested activities. If a concept can more conveniently be presented in smaller segments, the concept is divided into interrelated subconcepts. An outline of the subconcepts and their goals is provided. Content rarely covers more than one page before you find objectives and activities to present that material.

Artwork and other worksheets which you may find useful to reproduce, either as transparencies or in quantity for each student in your class, are called masters for reproduction. Masters for reproductions are labeled numerically according to unit, with the identification number in the upper right-hand corner. They are inserted directly after the concept containing their first reference. Resource lists for each section are found at the end of the section.

These resource units are designed so that you may choose to teach the units or concepts which fit into your discipline. They are adaptable and may be taught as a minicourse or integrated into your class time. The units provide information and direction for you and your school to use to develop a comprehensive traffic safety program. The materials and activities are arranged to provide the students with information about their special roles in the traffic environment and to provide them with experiences in risk assessment and decisionmaking, so that they may make safety a part of their lives.

NOTE ON THE METRIC SYSTEM

North Carolina State Board of Education has passed a resolution urging teachers to begin teaching the metric system to their students. By the 1981-82 school year, metrics will be the main system of measurement taught in the school. The Traffic Safety Resource Curriculum is designed to aid teachers in teaching metrics.

All measurements in the resource are presented in metric with the English equivalent following in parentheses. The only exceptions are on worksheets or diagrams where it would be too complicated to present this dual system on the same page. In those cases, a worksheet that is totally metric and another worksheet that is totally English are provided.

Note, too, that the equivalent measurements presented are not exact equivalents. Metric measurements have been rounded to the nearest multiple of five in most cases. The recommended teaching technique is to use metrics, not to convert from English. The equivalents are close enough to get a feel for the comparative quantities, but they are not precise. For example, the exact equivalent for 20 miles per hour is 32 kilometers per hour. However, the text will read 30 km/h (20 mph). When the Nation begins to use metrics, we will use multiples of 5, not odd numbers here and there.

If you wish to find more precise equivalents, or if you wish to use other metric measurements, a conversion table follows for your use.

METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measurements

Symbol	When You Know	Multiply by	To Find	Symbol
		LENGTH		
in.	inches	2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
		MASS (weight)		
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
t	short tons (2000 lb)	0.9	tonnes	t
		VOLUME		
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l

Approximate Conversions to Metric Measurements

Symbol	When You Know	Multiply by	To Find	Symbol
		LENGTH		
cm	centimeters	0.4	inches	in.
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.621	miles	mi
		MASS (weight)		
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	t
		VOLUME		
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal

NORTH CAROLINA STATE BOARD OF EDUCATION

Metric Resolution

WHEREAS, the Secretary of Commerce has found that increased use of the metric system of measurement in the United States is inevitable and has concluded that a national program to achieve a metric changeover is desirable and has recommended that immediate attention be given to the education of the public; and

WHEREAS, proposed federal legislation establishes a Metric Conversion Board to coordinate the voluntary conversion to the use of the metric system of measure in all sectors of our society; and

WHEREAS, it appears that such a bill will be passed making it national policy to facilitate and encourage the eventual substitution of the International Metric System of Measurement units for customary measurement units in education, trade, and commerce, making metric units predominant in a period of ten years; and

WHEREAS, 90% of the world's people and more than 75% of the world production and trade are currently employing the unified metric system of measurement; and

WHEREAS, the International System of Units (SI) is expanding its use in all major industries in the United States and many companies are adopting the metric system for production, marketing and advertising of their products; and

WHEREAS, the schools of North Carolina need to teach the complete use of such a system of measurement; now, therefore be it

RESOLVED, that North Carolina Public Schools provide increased opportunities for the learning of the modern metric system of measurement (SI) by the school year 1975-76. Instruction in the metric system should be in addition to instruction in the English System of weights and measures presently in use in the schools; provided, however, that the International Metric System of Weights and Measures shall be taught as the primary system of measurement beginning with the 1981-82 school year; and be it further

RESOLVED, that the State Board of Education adopt as policy the conversion of all measurement language to the International Metric System of Measurement (SI) in all phases of public education in North Carolina not later than the year 1981; and be it further

RESOLVED, that North Carolina institutions having approved programs of teacher preparation begin to provide for the teaching of the modern metric system (SI) by the school year 1975-76; and be it finally

RESOLVED, that this resolution be recorded in the Minutes of the State Board of Education, and copies be forwarded to the Governor, local Board of Education, to each Superintendent of Schools, and made available to the teachers in North Carolina, education, civic and industrial organizations, and to the Presidents of North Carolina institutions having approved programs of teacher preparation.

TRAFFIC SAFETY INFORMATION OFFICERS

Many activities suggest that a police officer will be a valuable resource. Contact the Information Officer for your county to come and speak to your class.

Sergeant G. L. Swanson Information Officer State Highway Patrol P. O. Box 1864 Greenville, North Carolina 27834 Phone - (919) 752-6118	Bertie, Hertford, Northampton, Halifax, Edgecombe, Pasquotank, Camden, Chowan, Currituck, Gates, Perquimans, Beaufort, Dare, Hyde, Tyrrell, Washington, Pitt, Martin, Craven, Carteret, Pamlico
Sergeant W. P. Register Information Officer State Highway Patrol P. O. Box 4450 Fayetteville, North Carolina 28306 Phone - (919) 484-1181	Cumberland, Sampson, Onslow, Jones, Dublin, Pender, Columbus, Bladen, New Hanover, Brunswick
Sergeant V. A. Griffin Information Officer State Highway Patrol P. O. Box 100 Cary, North Carolina 27511 Phone - (919) 829-3911	Nash, Wayne, Lenoir, Wake, Vance, Franklin, Warren, Wilson, Greene, Johnston, Harnett
Sergeant J. G. Lawrence Information Officer State Highway Patrol P. O. Box 20028 Greensboro, North Carolina 27420 Phone - (919) 379-5621	Chatham, Lee, Moore, Guilford, Durham, Orange, Person, Caswell, Granville, Alamance, Randolph
Sergeant J. M. Varner Information Officer State Highway Patrol P. O. Box 79 Salisbury, North Carolina 28144 Phone - (704) 636-0421	Davidson, Stanly, Montgomery, Rowan, Davie, Forsyth, Rockingham, Stokes, Cabarrus
Sergeant M. K. Holcomb Information Officer State Highway Patrol P. O. Box 670 Newton, North Carolina 28658 Phone - (704) 464-4210	Surry, Yadkin, Wilkes, Alleghany, Ashe, Caldwell, Burke, Iredell, Alexander, Catawba, Lincoln, Cleveland

Sergeant W. D. Stiles
Information Officer
State Highway Patrol
P. O. Box 9567
Asheville, North Carolina 28805
Phone - (704) 298-4253

Yancey, Avery, Madison, Mitchell,
Watauga, McDowell, Rutherford,
Henderson, Polk, Transylvania,
Buncombe, Haywood, Jackson, Swain,
Cherokee, Clay, Graham, Macon

Sergeant R. M. Walsh
Information Officer
State Highway Patrol
P. O. Box 1158
Monroe, North Carolina 28110
Phone - (919) 283-8101

Gaston, Richmond, Hoke, Scotland,
Union, Anson, Robeson, Mecklenburg

LIEUTENANT A. W. RECTOR
COORDINATOR FOR THE STATE
STATE HIGHWAY PATROL
1100 NEW BERN AVENUE
RALEIGH, NORTH CAROLINA 27611

CREDIT TO. . .

Much of the teacher information, many of the activities and masters for reproduction, as well as the resource lists have been reprinted or adapted from guides and materials developed by other States and sources.

For this reason, credit is indicated by code number throughout the guide. Following are the numbered reference sources.

1. Safety Instructional System
   Maryland State Department of Education
   Baltimore-Washington International Airport
   Baltimore, Maryland 21240

2. Safety Education Units for Illinois Elementary Schools
   State of Illinois
   Office of the Superintendent of Public Instruction
   Springfield, Illinois 62706

3. Teaching about Safety Resource Units
   National Safety Council
   425 North Michigan Avenue
   Chicago, Illinois 60611

4. A Traffic Safety Multi-Media Program K-12
   Kokomo-Center Township Consolidated School Corporation
   Kokomo, Indiana 56901

5. School Safety Magazine
   National Safety Council
   425 North Michigan Avenue
   Chicago, Illinois 60611

6. All about Bikes
National Safety Council
425 North Michigan Avenue
Chicago, Illinois 60611

7. Curriculum Guide for Safety Education Grades K-6
Michigan Department of Education
Michigan Office of Highway Safety Planning
Lansing, Michigan 48902

8. Teaching Children about Safety Belts
U. S. Department of Transportation
National Highway Traffic Safety Administration
Washington, D. C. 20590

9. K-6 Indiana Traffic Safety Education Curriculum
Indiana State Department of Public Instruction
Indianapolis, Indiana

10. Steps to Safety
Raleigh Public Schools
Raleigh, North Carolina 27605

11. Traffic Safety Education Performance Curriculum
Connecticut Department of Education
Hartford, Connecticut 06115

12. Petroleum Power Program
National 4-H Service Committee, Inc.
Program Services
150 North Wacker Drive
Chicago, Illinois 60606

13. A Resource Curriculum in Driver and Traffic Safety Education
Automobile Safety Foundation
Washington, D. C.

14. Alcohol and Alcohol Safety, a Curriculum Manual for Junior High Level (Vol. I)
U. S. Department of Transportation
National Highway Traffic Safety Administration
400 Seventh Street SW.
Washington, D. C. 20591

15. Traffic Safety K-9 Curriculum Guide
Wisconsin Department of Public Instruction
Madison, Wisconsin 53702

TRAFFIC SAFETY
LEVEL D - GRADE 7

TABLE OF CONTENTS

Page

Pedestrian Safety 7
Teacher Information 8
Unit Outline 9

Unit Concepts:

I. The Pedestrian's Relationship to Traffic 10
II. Pedestrian Accident Facts 18
III. Preventing Accidents 24

Bicycle Safety 33
Teacher Information 35
Unit Outline 36

Unit Concepts:

I. Identifying Bike Hazards 37
A. The Bicyclist's Relationship to Traffic 38
B. Bike Accident Causes 40
C. Hazards at Intersections 42
D. Hazards at Hill Crests 44
E. Maintaining Control of Bike 46
F. Other Hazards and Summary Activities 48
II. Bike Rules and Regulations 53
A. The Bicycle as a Vehicle 54
B. Rules of the Road for Turning at Intersections 62
C. Laws for Night Driving 72

TABLE OF CONTENTS (cont)

Page

III. Bike Mechanics 75
  A. Bike Parts 76
  B. Why Have Gears on Bikes? 88
  C. Preventive Maintenance 92
  D. Bicycle Fit 98
  E. Choosing the Right Bike for You 102
IV. Preventing Theft 104
V. Health and Performance Skills 107
  A. A Fun Way to Keep in Shape 108
  B. Performance Skills 112

School Bus Safety 129
  Teacher Information 130
  Activities 133

Farm Vehicle Safety 139
  Unit Outline 141

Unit Concepts:

I. Starting and Stopping a Farm Vehicle 142
II. Special Hazards of Farm Vehicle Operation 144
III. Driving a Farm Vehicle on the Highway 148

Resource Lists 151
  Pedestrian 152
  Bicycle 153
  School Bus 159
  Farm Vehicle 160

LIST OF MASTERS

Page

Pedestrian Safety

1. Easy Walker 12
2. Take a Good Look 13
3. Moving Eyes 15
4. The Pedestrian Game 21
5. North Carolina Accident Facts 23
6. Using Your Head 29
7. Pedestrian Rights and Duties 31
8. Safety Scramble Game 32

Bicycle Safety

1. Risk List 52
2. Bicycle Rules of the Road Test 57
3. Turning Maneuvers #1 64
4. Turning Maneuvers #2 65
5. Turning Maneuvers #3 66
6. Intersection Transparencies #1 67
7. Intersection Transparencies #2 68
8. Intersection Transparencies #3 69
9. Intersection Transparencies #4 70
10. Bike Parts 79

LIST OF MASTERS (cont)

Page

11. Bike Labels 80
12. Ten-Speed Bike Parts 81
12a. Key to Ten-Speed Bike Parts 82
13. Bicycle Crossword 84
14. Bike Word Find 86
15. Bike Maintenance Procedures 95
16. Suggested Bike Maintenance Checklist 96
17. Things to Remember When Selecting the Proper Size Bike 101
18. Bicycle Driver's Record 115
19-26. Bike Rodeo Plans 116
27. Bicycle Clubs in the School 125
28. The History of the Bicycle 127

School Bus Safety

1. Bus Buzz 136
2. North Carolina Motor Vehicle Laws 137

INTRODUCTION

The seventh grade section of the Traffic Safety Resource Curriculum presents units in pedestrian, bicycle, and school bus safety, plus an optional Farm Vehicle Safety Unit for rural students.

This section emphasizes the development of the students' abilities to identify risks and to predict how that risk may affect them as pedestrians or bicyclists. It also suggests mature ways to react to risks and avoid hazards.

The resource units cover Pedestrian, Bicycle, School Bus, and Farm Vehicle Safety. The pedestrian unit deals with risk assessment and how to avoid hazards. The bicycle unit includes a concept dealing with risk assessment, as well as rules and laws, bike maintenance, theft prevention, and health and performance skills.

At this level the school bus safety unit deals with rules of behavior, but invites the students to consider their needs and the needs of others who share the bus. Consider with the students just what kind of behavior it is reasonable to expect from sleepy or tired students whose ride may last an hour. How can they make the trip more enjoyable for everyone?

The farm vehicle safety unit covers the basic concepts necessary to operate a farm vehicle safely in the field or on the highway.

PEDESTRIAN SAFETY

TEACHER INFORMATION - PEDESTRIAN SAFETY UNIT

Traffic accidents are the biggest single cause of death and injury among children 10 to 14 years old. When you teach traffic safety, you can help the children survive in the traffic environment by:

--helping them recognize the danger of traffic accidents,

--aiding their ability to recognize and assess hazardous situations before the situations have progressed to the point that an accident is unavoidable, and

--giving them guidance about laws and rules which help them keep themselves safe.

Not a lot more about accident causes can be said, beyond the outline and the student information, without going into statistics. But here are a few facts to keep in mind while teaching this section:

1. Pedestrian deaths are fairly well divided between boys and girls, but more boys than girls are involved in injury accidents.
2. While 60 percent of all pedestrian accidents happen in city environments, three-fourths of the deaths occur on rural roads. It is essential that children living in rural areas learn how dangerous those roads are and how they can protect themselves. Walking against the traffic can help only if they know to get off the road when they see a car approaching. Help them learn where it is safe to cross--places away from curves and other hindrances to visibility. Point out that most accidents on roads with few traffic signals occur at intersections with signals or STOP signs; the driver is more likely to fail to stop at those places. Children living in town must not be neglected, but most of the prepared rules and other materials are geared to places with blocks and intersections.
3. A pedestrian is much more likely to be killed or seriously injured than a person involved in any other type of accident except bicycling accidents. Pedestrians and the bicyclists have only their skin and clothing to protect them from steel and glass. Battling with 2 tons of steel is no joke--it's a massacre!

UNIT OUTLINE

Concepts	Goals
I. The Pedestrian's Relationship to Traffic	Students should be aware of the pedestrian's relationship to the traffic environment.
	Students should practice the skills necessary for safe pedestrian behavior.
II. Pedestrian Accident Facts	Students should recognize the extent of the pedestrian accident problem and how it applies to their behavior.
	Students should list six major actions which cause pedestrian accidents.
III. Preventing Accidents	Students should list the five basic rules for and the laws which apply to pedestrian behavior.
	Students should develop positive attitudes toward self-protective behavior.
	Students should be able to analyze traffic situations and identify potential hazards.

CONCEPT I: THE PEDESTRIAN'S RELATIONSHIP TO TRAFFIC

A. Advantages of pedestrians
   1. Free-moving and easy maneuverability
   2. Travel over rough terrain
   3. Healthy and nonpolluting
   4. Saves gas

B. Limitations of pedestrians
   1. Slow
   2. Exposed to weather
   3. Hard for drivers to see because of size
   4. At great disadvantage when in a collision with a motor vehicle. A person is crushed like an egg when hit by 2 tons of steel.

C. Skills of pedestrians
   1. Visual - Pedestrians must use their eyes to spot hazards. To really "see," pedestrians must take time to focus each time they cross the street. Look left, right, ahead, back around the corner, and back to the left.
   2. Hearing - Pedestrians can often hear dangers before they see them; for example, hearing a car in a driveway start up, a car accelerating as it turns a corner, or a car in a hidden driveway.
   3. Mental - Pedestrians must know what to look for to keep safe. They must know what the hazards to pedestrians are and the laws and rules which can keep pedestrians safe.

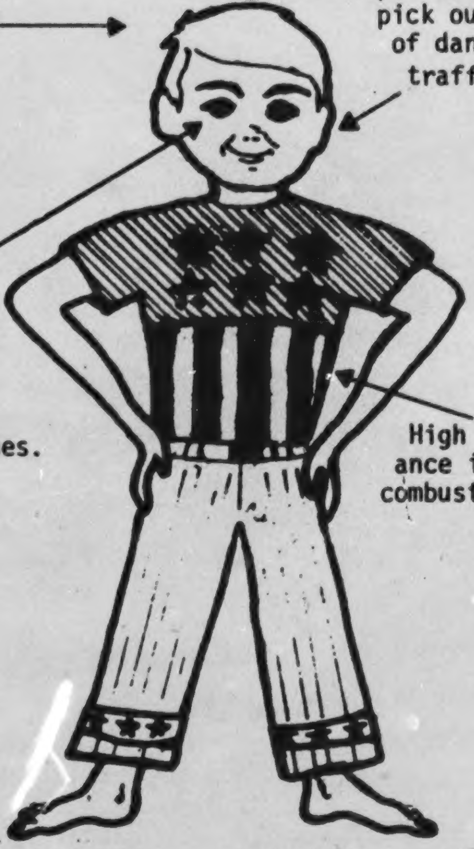
CONCEPT I: THE PEDESTRIAN'S RELATIONSHIP TO TRAFFIC (cont)

Objectives	Activities
1. Students will demonstrate understanding of the pedestrian's relationship to traffic by listing the pedestrians' advantages and limitations in traffic.	1. Use Master for reproduction 1, "Easy Walker," p. 12, to discuss the pedestrian's advantages and limitations. Ask - "Does a pedestrian have to be more careful than a driver?" "Why do you walk some places and ride to others?"
2. Students will recognize the three skills pedestrians must use and practice.	2. Print a familiar slogan on a large piece of paper. Misspell or repeat a word in the sentence. For example, print - "A stitch in in time saves nine." or "No Snoking". Flash the sign to the students and ask them what was on the sign. Most will read what they expect to see rather than the error. Ask - "What does that tell you about yourself?" "Do you know how to be skillful in seeing traffic hazards?" Lead the discussion through the skills a pedestrian must have. Use master for reproduction[2], (p. 13) to expand discussion. 3. Present the play, "Moving Eyes,"[5] from the National Safety Council. A copy is found on page 15 . Have the students write their own skits illustrating the skills a pedestrian needs.

**** ANNOUNCING THE EASY WALKER ****

Computer operates at full power--picks up danger signals, stores Rules of Road to use, knows thousands of useful facts and actions to make decisions to guide Easy Walker through the traffic environment.

Special device to pick out sounds of danger in traffic.



Rotating scanning system hooked to computer which judges when to cross, I.D.'s hazards, triggers alarm when danger approaches.

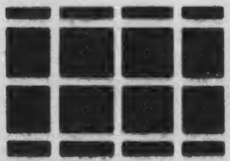
High performance internal combustion system

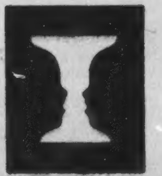
MAKES A LOT OF SENSE, AMERICA!

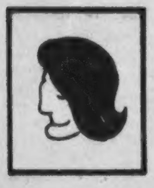
New Improved SUPER FEET
carry the walker safely across streets
(walk on left if no sidewalk exists; never run into street)

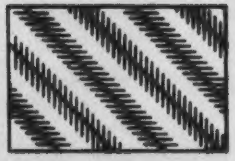
SPECIAL FEATURES

1. Saves gas
2. Comes in two basic models with many decorative features
3. Easy maneuverability
4. Handles all terrains
5. Many safety features
6. Forward/reverse and many speeds
7. A/C
8. White/bright retroreflective option for night travel









TAKE A GOOD LOOK

Is what you see really there or what you don't see really not there?

Look at the top illustration at the left. See the gray spots where the white lines meet? Sure you do. Now, look closely at one of them and it will disappear.

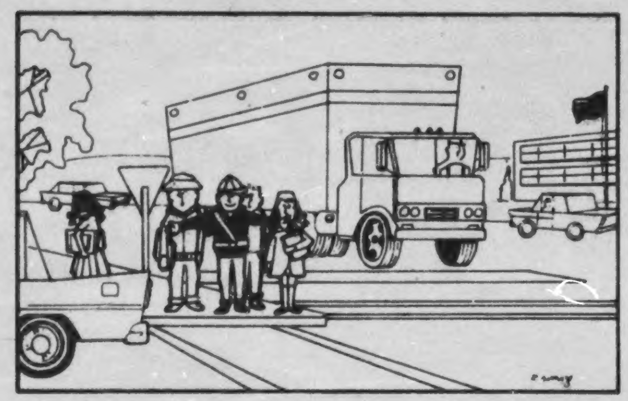
Look at the next drawing. What do you see? At first glance some people see a vase, others see two faces. Take another look at it.

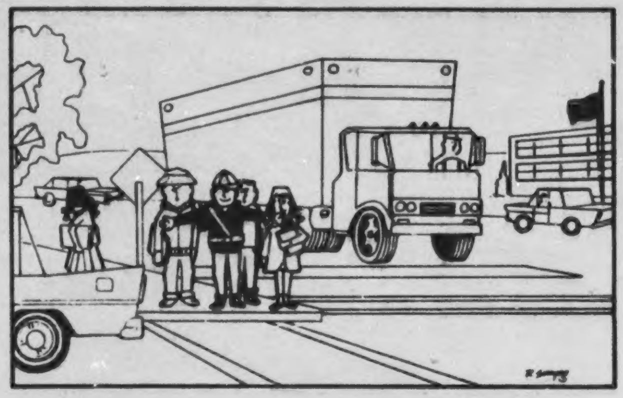
Do you see a young girl or an old lady in the next drawing? Look again to be sure.

Now, the last illustration. Look at the diagonal lines. Not parallel, are they? But wait a minute. If you'll check closely you'll find that they really are parallel.

What about traffic on the streets you cross? When a quick glance tells you there are no cars coming or that there's nobody behind the wheel of any of those nearby parked cars, do you check again to make sure that your quick glance didn't fool you?

That second look has kept many a boy and girl from being run into and seriously injured.





FIND THE DIFFERENCES

Do you always size up the traffic scene for safety when you're walking? If so, you're a good looker. And you can probably tell at a glance that these two cartoons aren't exactly alike. So, take a good look and see if you can list the seven changes that have been made in the drawing at the right.

Reproduced with permission from Family Safety, Spring 1973.

MOVING EYES

(A short play about cars and vision)

NARRATOR: Meet Bruce, the Killer Car! He hates people. Especially young people. The staff of School Safety Magazine received word that this car is actually alive. So a correspondent was sent to the garage home of Bruce, the Killer Car. (Its location must remain a secret.) This correspondent went on a demonstration ride with Bruce, or should it be in Bruce. . . or both? Anyway, what he saw and heard shocked and frightened him. What follows is a play-by-play description of this ride as taken from a tape recording.

CORRESPONDENT: Now I'm opening Bruce's door, climbing in, and sitting down in the driver's seat. I won't do any steering though. Bruce will handle all of that and explain just what he's doing as we go along. We're picking up speed. Now we're finally settling down at our cruising speed of about 10 miles per hour above the speed limit. Where are we headed, Bruce?

BRUCE: Near Franklin School. A lot of the kids who walk to school will be in that area now.

CORRESPONDENT: Bruce, you mean you're really going to try to hit those people?

BRUCE: How do you think I got my reputation? Look up there in the next block. See those bicyclists crossing the street? I'm going to speed up now. See how they're driving in single file, each one looking at the bike in front of him? They'll never see me until I'm right up on them. Hold on! Here we go!

CORRESPONDENT: We're rapidly approaching the bicyclists now. I can't look. . . wait a minute. One of the boys is turning and looking in our direction. He must have said something to the others because they're all pedaling faster--right out of our path.

BRUCE: Rotten luck. That kid would have to look. Oh, oh, we've got another chance. Look at those kids waiting at the bus stop. They're horsing around and jostling one another out into the street. Nobody's watching traffic. I'm stepping on the gas. Hold on!

CORRESPONDENT: Here we go again. Those youngsters just aren't watching. Their attention is on a dog that's playing with one of the boys. Oh, this is terrible. The dog's smarter than the kids. He's seen Bruce and he's barking. Now the kids see us. Thank goodness. They're jumping back to safety. Bruce is going to be disappointed again. Going to give up, Bruce?

BRUCE: Nope. Just a couple of blocks down this way is another good spot. I've got a trick or two up my sleeve. . . er, fender, that is. Notice how I'm just creeping along?

CORRESPONDENT: Yes, why is that?

BRUCE: Well, if kids happen to notice me coming down the street, they'll think I'm coming so slow that they have plenty of time to get across the street. That's when I step on the gas. If the kids don't look my way again I'm right on them before they realize it. Nuts! That little girl is looking this way again. She sees I've speeded up. She's running out of the way. Foiled again!

CORRESPONDENT: Going to give up?

BRUCE: Maybe. Don't see much else around here. There's a boy starting to cross the street, but he's really staring at us. We can't get him. Wait a minute. Look at that. He wasn't paying any attention to those other boys playing catch on the sidewalk. He just got hit in the back with a wild throw. He's not so smart after all.

CORRESPONDENT: Really, Bruce, let's call it a day.

BRUCE: Okay, we'll head back to the garage now and you can go back to your office. I've got to start planning my after-school strategy.

CORRESPONDENT: This is your School Safety Correspondent signing off. Over and out.

Later, in the offices of School Safety Magazine, the correspondent reported his findings to the staff. How can children protect themselves from a killer car like Bruce?" the correspondent was asked.

I noticed that the people who were smart enough to be out of danger when Bruce was near always kept their eyes moving, the correspondent replied. They checked one direction, then the other, then behind them, and finally ahead of them. Then they checked everything again and they kept on checking until they were out of the danger area. Those kids knew that any vehicle can change speed or direction in seconds. They knew something that all pedestrians should know--the smartest strategy to stay safe: keep your eyes moving so nothing else that's moving can slip up on you and hurt you.

National Safety Council. School Safety (January-February 1968), 425 North Michigan Avenue, Chicago, Illinois.

CONCEPT II: PEDESTRIAN ACCIDENT FACTS

A. North Carolina accident facts.

1. Almost 3,000 pedestrians are killed or injured each year in North Carolina.
2. About half are under 15 years old.
3. About 60 percent of accidents happen in cities or towns, but three-fourths of deaths occur on rural roads.
4. Pedestrian accidents make up one-fifth of N.C. traffic deaths.
5. Pedestrian accidents are much more likely to cause death or serious injury than other traffic accidents.

B. What causes accidents?

1. Accidents are unintended events which cause death or injury. Nobody means to cause an accident but accidents are caused.
2. In North Carolina, accidents are caused by:
    - a. Crossing at a place which is not an intersection. Over half the accidents in this age group are "dash-outs." Pedestrians cross where car drivers do not expect them. And they dash into the road so quickly that drivers cannot stop in time.
    - b. Crossing at intersections against the light (failure by pedestrian to yield).
    - c. Crossing at intersections with the light (cars which turn or fail to stop).
    - d. Emerging in the street from between parked cars. This is another kind of "dash-out" accident. Drivers do not see the pedestrian in time to stop.
    - e. Walking at nighttime. The pedestrian is practically invisible at night. A pedestrian who is hit by a car in the dark is three times more likely to die than if the accident occurred in the daylight. Rain and fog also increase the pedestrian's danger greatly.
    - f. Playing in the street.

146

CONCEPT II: PEDESTRIAN ACCIDENT FACTS (cont)

Objectives	Activities
1. Students will understand the extent of the pedestrian accident problem and how it applies to them. 2. Students will list six major actions which lead to pedestrian accidents. 3. Students will demonstrate understanding of causes of pedestrian accidents.	1. Read or distribute The Pedestrian Game; discuss it (p. 21). Ask students to complete these sentences: "An accident will never happen to me because . . ."; "I should think about having an accident because . . ." Or have them consider the idea--"If I think about having an accident, I will have an accident." 2. Have students complete the worksheet, North Carolina Accident Facts, p. 23 . Discuss the answers, especially to 10 and 11. 3. Ask students to collect news accounts of pedestrian accidents; discuss how they could have been avoided, and possibly decide who was at fault. 4. Assign an individual or group research project to determine significance of local and statewide accidents with emphasis on accident type (crosswalks, jaywalking, etc.), time of day, and unique hazards. Use statewide statistics on accidents by age.

THE PEDESTRIAN GAME

What would you say about a friend who stands in the path of a raging elephant and says: "Oh, he'll stop for me"? You might say that friend wasn't playing with a full deck. Yet every day, many pedestrians play the same game with a far more death-dealing opponent--the automobile.

One-fifth of all the people killed in North Carolina traffic accidents are pedestrians. They just didn't see the danger in stepping off the curb into 2 tons of steel hurtling toward them.

How can you keep yourself safe when you walk? Well, let's take a look at some facts about what causes accidents. First of all, just what is an accident? Official definition: an accident is an unintended event which results in death, injury or damage. Nobody means to have an accident, but somebody always causes an accident.

In North Carolina, about 300 people are killed and another 2,500 injured each year in pedestrian accidents. Think of it! If tornadoes killed and injured that many people in a day, imagine the shouting that would result. Everyone would be digging tornado shelters or heading for the hills. The pedestrians are knocked off one by one--and no one seems to realize the dangers.

What causes pedestrian accidents in our State? If we look at the facts, we can develop some ideas about how to avoid injury. Over half of the accidents happen when a pedestrian is crossing the road away from an intersection. These pedestrians are just looking for an accident.

Take the Dasher. He runs into the street smack into a car. The driver just doesn't see or expect him--and can't stop the car in time.

A similar type is the parked car sneak who plays hide and seek with the traffic. He steps from between parked cars which hide him from the driver's view. What he's seeking is a trip to the hospital.

Then there's the pedestrian who crosses at the intersection, which is, of course, safer. But this type doesn't wait for the signal light to change--and doesn't look for cars either. "Oh, the cars will stop for me," they say. Crossing at an intersection against the lights and not looking for cars is asking for trouble. Even if you cross at the corner and wait for the light, you can still be in trouble. Don't think every driver is going to obey the lights. Turning auto drivers often are so busy watching other cars that they forget to look for people crossing. If you are injured, it's not *really* your fault. But that won't make the days in the hospital any easier to endure.

Rural pedestrians run a big risk when walking along country two-lanes. Cars come whizzing along--behind them if the pedestrians don't walk facing the traffic. No one has eyes in the back of his head; cars can get them while they aren't looking. If they walk facing traffic, they could hit the deck if a car looked like it was veering toward them. They don't realize how dangerous these roads are. More pedestrians die on rural roads in North Carolina than any other type of place.

There is one more pedestrian type who brings accidents upon himself--The Phantom. This sinister type lurks on dark streets in dark clothes, looking for accidents. Fog, rain, and dusk are also his favorite times. He is practically invisible and auto drivers run right into him. The sad part about his funeral is that he really thought he glowed in the dark. If he had just worn white--or a reflective patch--and looked out for cars, he might be alive to tell about it.

You can probably guess the last accident type. It's the type that plays in the street. People pay so much attention to a game, they don't look for cars. It's a good way to lose.

NORTH CAROLINA TRAFFIC FACTS

Age of Casualty	Number of Pedestrians Killed			Number of Injuries		
	Total	Male	Female	Total	Male	Female
0-4	24	12	12	172	114	58
5-9	39	22	17	384	232	152
10-14	11	6	5	261	152	109
15-19	20	11	9	188	126	62
20-24	21	18	3	159	125	34
25-34	17	12	5	148	107	41
35-44	28	23	5	121	93	28
45-54	30	20	10	104	67	37
55-64	20	17	3	85	50	35
65 and older	60	49	11	116	72	44
Total	270	190	80	1,738	1,138	600

1. How many pedestrians in your age group were killed? Injured?
2. Which age has highest number of people killed? Injured?
3. Are males or females more likely to be killed? Injured? For your age group?
4. How many people were killed in the 25-34 age group? Injured 55-64? 65 and older?
5. What age group has highest number of deaths? Injuries?
6. What percent of people killed are under 4? 10-14? 65 and older?
7. What is most dangerous age to walk?
8. What is second most dangerous age? Third?
9. Can you think of any reasons why this ranking might be so?
10. What can you do about it?
11. If you were a driver, how would you act if you saw a 4-year-old? 8-year-old? 25-year-old? 65-year-old? along the wrong side of the road?

CONCEPT III: PREVENTING ACCIDENTS

A. There are many rules for a pedestrian to follow. They all stem from two basic concepts--seeing dangers and being seen by drivers.

B. More specific rules are listed on pages
   1. Laws of North Carolina
   2. Other rules

C. The students need guidance and practice in identifying risks. Draw from the students' experiences and the causes of accidents section to discuss hazards.

CONCEPT III: PREVENTING ACCIDENTS (cont)

Objectives	Activities
1. Students will be able to analyze a traffic situation and identify potential hazards.	1. Distribute the student narrative, "Using Your Head," p. 29 , and Pedestrian Rights and Duties, p. 31. Discuss the questions in the narrative. 2. Have small groups select a specific intersection, crosswalk, etc., that the group has decided is particularly hazardous. Each group can prepare a written report indicating: a. Specifically why selected site was considered hazardous. b. Preventive measures to eliminate hazards. c. Accident history of each location. The teacher might consider the possibility of bringing this material to the attention of the news media or town council as an illustration of the means to institute change in a democratic government.[2] 3. Given a local map of the school district, each student will trace a safe route to school from home. He will identify existing hazards and suggest ways to minimize each hazard. Discuss

Objectives	Activities
	pamphlet, Safest Route to School (American Automobile Association). Discussion questions regarding safe routes can include: a. Think about your walk to school or the school bus stop. Use these rules when deciding the best route to take: 1. Cross streets where there is a traffic signal or stop sign. 2) Use streets with sidewalks if possible. 3) Use intersections where you can easily see the traffic and the drivers can see you. 4) Use streets with fewest busy driveways and alleys or other places where you and the traffic must cross each other's paths. b. Along any pedestrian route there will always be hazards. Do you have to face these hazards? What do you do? Is your action the safest?

CONCEPT III: PREVENTING ACCIDENTS (cont)

Objectives	Activities
	1) Roadways with no sidewalks. 2) Blind intersections, where the drivers can't see the intersection until they are crossing into it, and you can't see the cars until they are right in front of you. 3) Busy alleys and driveways that pass over sidewalks. 4) Busy intersections that are uncontrolled or unguarded. c. How can the hazards that you spot be wiped out? Here are some suggestions that might apply. 1) Parking controls to keep cars away from intersections. 2) Have shrubs trimmed. 3) Paint crosswalks at intersections, driveways, and alleys. 4) School-crossing guards or safety patrol added to uncontrolled intersections.

CONCEPT III: PREVENTING ACCIDENTS (cont)

Objectives	Activities
2. Students will list the five basic pedestrian Rules of the Road and the laws which relate to the pedestrian.	5) Appropriate signs erected. 4. Prepare posters illustrating pedestrian Rules of the Road for distribution throughout school. 5. Class demonstration of reflective qualities of differently colored clothing and the use of reflector tape to emphasize significance to pedestrian safety at night and during inclement weather. 6. Create a showcase display of pedestrian safety items used at night such as flares, lanterns, reflective tape, light-colored clothing, flashlight. 7. Have the students unscramble the words listed in the Safety Scramble Game, p. 32 .

USING YOUR HEAD

How can you become a safe walker, not an accident seeker? Use all your muscles--including the big grey ones in your heads. All the rules for safe pedestrian behavior you know are different versions of two simple rules.

Rule 1 - Make sure you see the cars and other traffic.

Rule 2 - Make sure the drivers can see you.

Practice looking for dangers all the time. It's a smart habit to have. Think of where you walk--where are there places that are risky? Do you walk along busy streets? Roads where cars drive at high speeds? Places where buses or signs make it hard to see and be seen by drivers? Busy intersections?

Did you know that pedestrians have laws that they must follow? Look at the next page for North Carolina laws on Pedestrian Rights and Duties.

Here are a few more rules for pedestrians to use:

1. Any time a sidewalk is available, use it.
2. When a sidewalk is not available, walk on the left side of the roadway or street. Walking on the left means pedestrians have:
    a. A better view of the traffic coming toward them.
    b. A greater chance that the driver will see them.
    c. The ability to see what cannot be heard.
3. Don't jaywalk. Jaywalking is crossing a street in town at any place other than at an intersection. Some hazards of jaywalking are:
    a. Being struck by a car leaving a parking space.
    b. Drivers of vehicles would not expect a pedestrian at mid-block.
    c. Could be struck by bicycle or motorcycle driving near parked cars.

4. The pedestrian is better off crossing at an intersection. The following are safe procedures for crossing at three types of intersections:
   a. Guarded Corners
      1) Wait on sidewalk or safely off the road until guard gives instructions to cross.
      2) Cross quickly but do not run.
   b. Corners with Traffic Signals
      1) When green is facing you, check traffic before crossing the street or road.
      2) When yellow is facing you, the light will soon change to red. Wait on sidewalk; there is not enough time to cross safely.
      3) When red is facing you, wait on sidewalk.
   c. Uncontrolled
      1) Use extreme caution.
      2) Check traffic in all directions.
      3) Cross quickly when safe to do so--do not run!

5. When walking at night, in the dusk or dark, in fog or rain:
   a. wearing light-colored clothing, preferably white, or
   b. carrying something white,
   c. wearing reflector strips or other reflective material, or
   d. carrying a light.

PEDESTRIAN RIGHTS AND DUTIES

Sec 20-172	Pedestrians shall be subject to traffic control signals at intersections.
Sec 20-173	Where traffic control signals are not in place or in operation, the driver of a vehicle shall yield the right-of-way, slowing or stopping if need be to so yield, to a pedestrian crossing the roadway within any marked or unmarked crosswalk at an intersection.
Sec 20-174	Every pedestrian crossing a roadway at any point other than within a marked or unmarked crossing at an intersection shall yield the right-of-way to all vehicles upon the roadway.
Sec 20-174.1	No person shall willfully stand, sit, or lie upon the highway or street in such a manner as to impede the regular flow of traffic.
Sec 20-175	No person shall stand in any portion of the State highways, except the shoulders thereof, for the purpose of soliciting a ride from the driver of any motor vehicle.
Sec 20-175.1	It shall be unlawful for any person except one who is wholly or partially blind, to carry or use in any street or highway, or in any other public place, a cane or walking stick which is white of color or white-tipped with red.
Sec 20-175.2	At any street, road, or highway crossing or intersection, where the movement of traffic is not regulated by a traffic officer or by traffic control signals, any blind or partially blind pedestrian shall be entitled to the right-of-way at such crossing or intersection; if such blind or partially blind pedestrian shall extend before him at arm's length a cane white in color or white tipped with red or if such person is accompanied by a guide dog.

SAFETY SCRAMBLE GAME

Place scrambled words on board and have the children unscramble them.

tesdpinaer	pedestrian
farticf	traffic
climponea	policeman
yeob	obey
caufelr	careful
telra	alert
tchaw	watch
ragned	danger
tpos	stop
der	red
reneg	green
welloy	yellow

BICYCLE SAFETY

TEACHER INFORMATION - BICYCLE SAFETY UNIT

Most accidents occur because the bicyclist or auto driver fails to realize that an accident is probable until the accident is unavoidable.

To prevent an accident, a person must be able to identify accident causes and weigh the possibility of an accident happening. That is why this unit stresses the importance of identifying bicycle hazards. Knowledge of how the bicycle relates to the traffic environment is also important in risk assessment.

Other areas important to bike safety include knowledge of the legal responsibilities of the bicyclist and the ability to maintain the bicycle in good working order. Physical skill on the bike is also important.

The concepts covered in the Bike Safety Unit are the same concepts the student will deal with in driver education. It's excellent predriver training for the youngsters.

UNIT OUTLINE

- Concept I: Identifying Bike Hazards
  - Subconcept A: The Bicyclist is Relationship to Traffic
  - Subconcept B: Bike Accident Causes
  - Subconcept C: Hazards at Intersections
  - Subconcept D: Hazards at Hill Crests
  - Subconcept E: Maintaining Control of Bike
  - Subconcept F: Other Hazards and Summary Activities
- Concept II: Bike Rules and Regulations
  - Subconcept A: The Bicycle as a Vehicle
  - Subconcept B: Rules of the Road for Turning at Intersections
  - Subconcept C: Laws for Night Driving
- Concept III: Bike Mechanics
  - Subconcept A: Bike Parts
  - Subconcept B: Why Have Gears on Bikes?
  - Subconcept C: Preventive Maintenance
  - Subconcept D: Bicycle Fit
  - Subconcept E: Choosing the Right Bike for You
- Concept IV: Preventing Theft
- Concept V: Health and Performance Skills on the Bicycle
  - Subconcept A: A Fun Way to Keep in Shape
  - Subconcept B: Performance Skills

CONCEPT I: IDENTIFYING BIKE HAZARDS

Subconcepts	Goals
A. The Bicyclist is Relationship to Traffic	Students should understand the bicyclist's relationship to the traffic environment.
B. Bike Accident Causes	Students should list major causes of bike accidents. The students should be able to determine the point when an accident becomes inevitable.
C. Hazards at Intersections	Students should recognize the hazards presented by intersections and the defenses they can exercise.
D. Hazards at Hill Crests	Students should recognize the hazards presented by crests of hills and the defenses they can exercise.
E. Maintaining Control of Bike	Students should recognize the hazards presented by not maintaining control of the bike, and the defenses they can exercise.
F. Other Hazards and Summary Activities	Students will list various dangerous situations for a biker and ways to avoid them. Students will practice recognition of those hazards in the areas where they travel.

SUBCONCEPT A: THE BICYCLIST IS RELATIONSHIP TO TRAFFIC

1. The pro's of bicycling
    a. Pollution-free
    b. Economical
    c. More maneuverable than cars
    d. Easy to park
    e. Riding a bike is good training for becoming a car driver.
2. The con's of bicycling
    a. Size
        1) Can only carry one person and limited amount of packages
        2) Since they are small, drivers do not see them.
    b. Unstable - cracks in pavement, debris in road, gravel, rain, can throw bikers off balance.
    c. Speed - bikers cannot speed up or outpedal automobiles.

SUBCONCEPT A: THE BICYCLIST IS RELATIONSHIP TO TRAFFIC (cont)

Objective	Activities
Students will understand the bicycle's advantages and limitations in traffic.	1. Discuss the bicyclist's role in traffic. Would you rather be a biker or a driver? Why? Ask the students to compare a bike and a car. What can a bicycle do that a car can't? And vice versa? Why is size and visibility a disadvantage? How can riding a bike help you learn to be a driver? (As well as learning what the Rules of the Road are, bicycling seems to aid a person's ability to steer a car. It also trains a person to identify important factors in the traffic scene.) 2. Have the students make posters to illustrate the pro's and con's of bicycling.

SUBCONCEPT B: BIKE ACCIDENT CAUSES

Most accidents happen because the people involved fail to see the danger until it is too late to do anything about it. So, recognizing dangerous actions, locations, or road conditions is important in avoiding accidents.

Bike accidents involve a number of factors. The factors considered in this concept are those involving active identification of hazards in the environment. Other concepts deal with mechanical defects in the bike, Rules of the Road, and performance skills.

Here is an overview of all factors that can cause bike accidents:

1. Most bicycle accidents happen at intersections; the second most dangerous place is at the crests of hills.
2. More accidents take place in residential areas; but most fatal accidents occur on rural high-speed roads.
3. Most bicycle accidents involve a bike driver who gets tangled up in the machine or sticks a foot in the spokes.
4. Many accidents happen because a bicyclist violates a Rule of the Road.
5. One in four bikes in an accident is not in proper mechanical condition.
6. Not maintaining control because of passengers, heavy packages, or stunting also causes accidents. Riding a bike too large or too small also decreases control and causes accidents.
7. Failing to keep a sharp lookout causes accidents. Examples are being surprised by:
    a. pedestrians stepping from between parked cars.
    b. a parked car door opening suddenly.
    c. cars pulling out from parking spaces.
    d. gravel, drains, or other debris in the path of the bike.

SUBCONCEPT B: BIKE ACCIDENTS (cont)

Objectives	Activities
1. Students will list seven factors which can cause bike accidents.	1. Ask students to list factors from their experiences that have caused bike accidents. Do their lists agree with the experts' list?
2. Students will be able to determine the point at which an accident becomes unavoidable.	2. Have the students describe events that led to accidents which happened to them. What was the last chance to avoid the accident? When did the accident become unavoidable? How could it have been avoided?
	3. Have students design a bicycle accident report form to include information about the bike driver, condition of the bicycle, a diagram of the accident, weather and road conditions, and other investigative questions. Then divide the class into small groups. Have one group (the "State troopers") leave the room while another group acts out a traffic accident. Have the other group return. Using the accident form, interview participants and witnesses to try to determine the cause of the accident. Ask how this accident could have avoided. When did it become unavoidable?

SUBCONCEPT C: HAZARDS AT INTERSECTIONS

Hazard. Most bike accidents occur at intersections--the end of an alley, a driveway, or a point where two streets cross. A bicyclist will suddenly emerge from an intersection into the path of an oncoming car.

Defense. Slow down at all intersections. Make sure you have a clear right-of-way before entering or crossing another street. Don't just glance either way. Look ahead, to the left, to the right, and to the left again before crossing. Looking several times insures that you have focused your eyes on the traffic. The procedures for intersection crossings are:

1. Right turns - Signal, check traffic four ways, turn into nearest lane.
2. Left turns - At busy intersections and/or multilane roads, dismount and walk bike in pedestrian crosswalks. A bike cannot compete with autos' acceleration speeds. If you're not seen, you lose. At less busy intersections, check behind you for traffic, signal, and move to left side of lane. Slow down or stop. Check traffic four ways and to left again. Turn with both hands on handlebars.
3. Straight ahead - Ride slowly when approaching. Check traffic four ways. If there are cars approaching, proceed cautiously even when you have the right-of-way. Don't linger in the intersection.

SUBCONCEPT C: HAZARDS AT INTERSECTIONS (cont)

Objective	Activity
Students will recognize the high degree of danger at intersections and demonstrate the proper defenses.	Diagram an intersection familiar to the students. Discuss how far away a car must be to stop if a biker suddenly darts into the intersection. Is the danger at an intersection that the biker doesn't see the car or that the car doesn't see the biker? Or both? Discuss the content material and ways that bikers protect themselves at intersections. (Followup activities at intersections are included in Concept II, Subconcept B, p. 58 .)

SUBCONCEPT D: HAZARDS AT HILL CRESTS

Hazard. On the crest of a hill or an incline on a straight road. The second largest group of bike accidents happen when the biker has just passed the crest of a hill or has just struggled up an incline. Cars reaching the top of the crest may not have time to see and avoid the biker in the road.

Defense. After passing the crest of a hill, if *there is no oncoming traffic in the left lane*, pull over into that lane for a short distance. A driver approaching the crest of a hill will not be able to see you and may not have time to move around you. After a distance of about 60 meters (200 feet), check to your rear and move back to the right lane. If there is oncoming traffic in the left lane, drive as far as possible to the right and keep a rear lookout for cars. Notice where you can aim in an emergency; e.g., a ditch or a side road. Note: This is an adult recommendation. We do not recommend teaching this maneuver to children under 12.

SUBCONCEPT D: HAZARDS AT HILL CRESTS (cont)

Objective	Activity
Students should recognize the hazards associated with the crests of hills and the proper defense.	In discussing the material with the students, ask them why they think the crests of hills are dangerous. What two factors are involved? Does a bike travel faster going uphill or downhill? Why? (gravity) Will a car act the same way? (It will go even faster because it is heavier.) What is the other factor involved? (The line of vision of a driver is cut off by the hilltop.)

SUBCONCEPT E: MAINTAINING CONTROL OF BIKE

Hazard. Make sure you can maintain control of your bike.

1. Carrying passengers causes loss of control.
2. Carrying packages in your hands or too big or heavy packages in a basket causes loss of control.
3. Stunting means you let the bike control you. Surely you have more brains than a bike. Don't ride "no hands" or without having your feet on the pedals. If you must stunt ride, pick a location which is safer than the street, such as a park area, well away from pedestrians and children playing. Be sure you are not going to hurt others as well as taking care of yourself.

Defense. Don't.

Hazard. Most bike accidents (not just traffic accidents) involve the driver of the bike sticking his feet into the spokes, etc., and therefore losing control of the bike.

Defense. Dress like a bike pro. Wear shoes that fit securely; no sandals or bare feet. Clip or roll up belled pants legs (strong rubber bands can act as clips).

SUBCONCEPT E: MAINTAINING CONTROL OF BIKE (cont)

Objective	Activities
Students will recognize the dangers involved in losing control of the bike and the proper defense.	1. In discussing the material, ask the students why they think people risk having an accident by carrying a passenger, or any of the other factors. What alternatives do they have? 2. Have the students design posters, etc., illustrating "dressing like a pro" for bicycling.

SUBCONCEPT F: OTHER HAZARDS AND SUMMARY ACTIVITIES

1. Other hazards that a biker has to look out for are:
    - a. Gravel, bumps, debris in roadway can cause a bike to fall.
    - b. A parked car door opening suddenly can force a biker into traffic.
    - c. Pedestrian stepping from behind parked cars can cause a collision.
    - d. Cars pulling out of parking spaces or hidden driveways can cause collision or force biker into traffic.
    - e. Storm drains which run parallel to the curb can catch a bike tire.
2. Use all the information in all the subconcepts for the following activities.

SUBCONCEPT F: OTHER HAZARDS AND SUMMARY ACTIVITIES (cont)

Objectives	Activities
1. Students should recognize potential hazards in their own community.	1. Have students discuss hazards or high-risk situations. Draw from their experiences as bikers to point out dangerous situations or locations in the community.
2. Students should know the proper defenses to danger encountered on a bicycle.	2. Accidents between bicycles and cars often happen because the auto driver does not see the bicyclist. The importance of defensive bike driving should be stressed to the students. Examples of hazards and high-risk situations should be discussed and the proper defenses recognized. a. Car turning left across path of bicycle at an intersection. Defense: 1) Slow down and check traffic at intersections. 2) Watch for signals from cars. 3) Walk bike across a busy intersection. b. Crossing railroad tracks. Defense: 1) Cross tracks straight on (perpendicular) so that bike wheels do not get caught in the spaces. 2) Look and listen for train.

SUBCONCEPT F: OTHER HAZARDS AND SUMMARY ACTIVITIES (cont)

Objectives	Activities
3. Students should recognize the unique hazards presented by urban and rural environments.	3. Have students compile lists of types of hazards in urban and rural bicycling. Use the master for reproduction #1, p.52 to start. Have students consider these and come up with more. Try to elicit responses from students. They might make posters or a bulletin board.
4. Students should examine their values relating to safe behavior while driving a bike.	4. Have students list on the chalkboard 10 safety rules which they have developed from the discussions. Each student should copy down the rules. Then say: "First - underline the two most important rules to you. "Second - if you were allowed to use only six of these rules, which four would you choose to live without? Cross them out. "Third - if you could use only four, which four would you circle?" Let the class discuss their choices. The purpose is to help students clarify the way they feel about safe bike behavior. This clarification can

Objectives	Activities
	be the first step toward a positive attitude about biking safety. At least, it should lead to an interesting discussion.

RISK LIST

	Urban Risks		Rural Risks
1.	A great number of cars, trucks, pedestrians at slower speeds.	1.	Fewer cars and trucks - much higher speeds.
2.	Lots of traffic control devices to keep track of.	2.	Few traffic controls - and drivers fail to stop (or see them) after driving for a long time without controls.
3.	Greater number of intersections (risks increase with number).	3.	Fewer intersections - but those intersections are more dangerous (risk increased because of situation).
4.	Parked cars - opening doors, pedestrians hidden behind them, the car blocking view of intersection, leaving parking spaces.	4.	Rural residents tend to leave driveways, etc., with no more than a cursory glance.
5.	Street drains are often turned parrallel to street - bike wheel may slip between.	5.	Roadway and shoulder of road often full of chuckholes or no shoulder at all.
6.	Right side of road often piled with debris (gravel, leaves, etc.).	6.	Same.
7.	Signs, shrubbery, etc., often block driver's and biker's view of each other.	7.	Same - as well, curves are dangerous because of visibility and crests of hills especially deadly. (May be hills in city, too.)
8.	Some streets in city are designed for no parking. These streets are not to be used by bikers. There will not be room for cars to pass bikers, and the cars are likely to run the biker off the road.	8.	Dogs are the bane of rural bikers. Be cautious and prepare to speed up if you see a dog.
9.	Expressways are prohibited to bikers.	9.	Expressways are prohibited to bikers.

CONCEPT II: BIKE RULES AND REGULATIONS

Subconcepts	Goals
A. The Bicycle as a Vehicle	Students will understand the Rules of the Road that they must obey as bicyclists.
B. Rules of the Road for Turning at Intersections	Students will be able to demonstrate the correct procedures for turns and the hand signals required by law.
C. Laws for Night Driving	Students will know the laws pertaining to night bicycling as well as additional ways to keep themselves safe while driving at night.

SUBCONCEPT A: THE BICYCLE AS A VEHICLE

To be a responsible bicyclist, students must know the State and local regulations which apply to bicyclists as well as the common sense Rules of the Road. In North Carolina, two State laws apply to the bicyclist. The first law makes all motor vehicle Rules of the Road applicable to bicycles. (The second is under subconcept C.)

Students must know these laws and obey them as bicyclists. In addition to endangering their safety and the safety of others by ignoring them, they might get a ticket.

The following rules and regulations should be emphasized in discussion:

1. Keep to the right.
2. Ride in single file.
3. Obey all traffic signals and signs.
4. Keep both hands on the handlebars.
5. Yield the right-of-way to pedestrians.
6. Keep behind moving cars.
7. Signal before turning.

SUBCONCEPT A: THE BICYCLE AS A VEHICLE (cont)

Objective	Activities
Students will know the Rules of the Road they must obey.	1. In a class discussion, establish the Rules of the Road. Why must bicyclists act like car drivers rather than pedestrians? Reasons include minimizing collisions. If a biker is struck from behind, the force of impact is less (subtract the bike speed from the speed of the vehicle) than it would be in a head-on collision (add the speeds together). Acting like car drivers also aids traffic flow since bikers drive in the street. 2. Have students illustrate Rules of the Road for bicycles for bulletin board use and/or distribution around the school. 3. Have the students obtain from the police chief copies of local ordinances applicable to bicyclists. 4. Have a local policeman or the State Highway Patrol's information officer for your area speak to the students about bicycle safety. Note: Ask policeman to leave his gun at home, since students are easily distracted by such equipment.

SUBCONCEPT A: THE BICYCLE AS A VEHICLE (cont)

Objective	Activities
	5. Film: Just Like a Car or Ride On. Consult resource list on these and other films. 6. In cooperation with other grade levels and the student council, set up a bike court and a bike patrol. Students can rotate responsibilities as patrol officers who hand out "tickets" and as members of the court. A more detailed plan for a bike court is in the Action Projects Section, page . 7. Use the Bicycle Rules of the Road Test master for reproduction #2 on p. 57, for evaluation and discussion purposes.

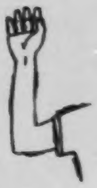
BICYCLE RULES OF THE ROAD TEST

True and False Questions: Answer the following questions which are true with a T, and those which are false with an F. Use the spaces in front of each question.

______ 1. Bicycles are a part of highway traffic just as cars are.

______ 2. When riding in a group, you should travel in single file, even when traffic is light.

______ 3. The hand signal for a right turn is pointing your left arm straight up like this.



______ 4. Hand signals for bike drivers are the same as for car drivers.

______ 5. Bike drivers need not make way for pedestrians who are crossing against a red light.

______ 6. Bike drivers don't have to watch for cars pulling out of alleys, driveways and parking places. It is the car driver's job to be careful.

______ 7. Your bicycle's headlight should be visible from 90 meters away.

______ 8. When approaching a blind corner, it is not necessary to slow down if you sound your bell or horn.

______ 9. Bicycles are allowed on expressways.

______ 10. You should ride at least three feet away from parked cars.

______ 11. The red reflector on the rear of your bicycle should be visible for at least 200 feet.

______ 12. Bicycle riders do not need to stop for a flashing red light at a railroad crossing if a train is not coming.

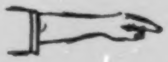
______ 13. Your bike needs a horn or bell only if you are allowed to ride in busy streets.

______ 14. You can drive a bike, but not a car, in either direction on a one-way street.

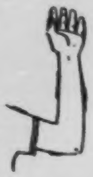
______ 15. You should always ride your bike with the traffic on the right hand side of the road.

______ 16. It is safe to hitch onto an automobile if the driver gives permission.

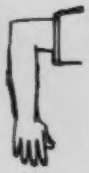
______ 17. You signal for a right turn by holding your right arm out straight.



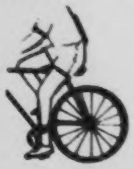
______ 18. The hand signal for a left turn is pointing your right arm straight up like this.



______ 19. This is the signal for slow and stop.



______ 20. A bicycle is the right size – and the saddle properly adjusted – if your knee is slightly bent when your foot is on the pedal like this.



______ 21. A bicycle rider must come to a complete stop at a stop sign.

______ 22. The chain on your bicycle should be loose enough to slip off easily.

______ 23. A bicycle driver should signal before turning into a driveway.

______ 24. A white light is necessary on the front of a bicycle operated at night.

______ 25. Blue is a good color to wear when driving a bicycle after dark.

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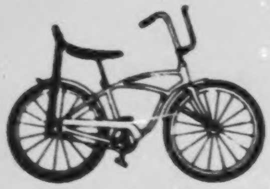
Multiple Choice Questions: Choose the *best* response which best completes or answers the following questions. Place the letter corresponding to the best answer in the space provided in front of each question.

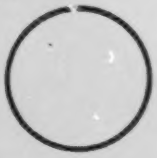
_______26. What bicycle would be best to go on long, hilly trips?
- a) High-risers
- b) Middleweight
- c) Lightweight

_______27. Which of the following bicycle equipment is required by law?
- a) Speedometer
- b) Light
- c) Kick stand
- d) Basket

_______28. How many people can this bicycle carry safely?
- a) Not more than two
- b) Only one
- c) No special number

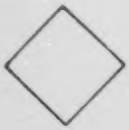


_______29. What does this sign say?
- a) Stop
- b) Yield
- c) Railroad
- d) Warning

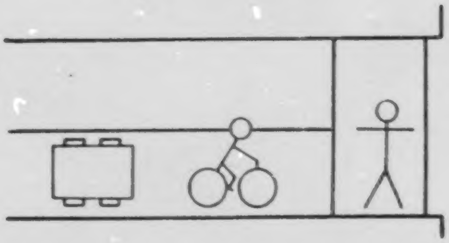


_______30. Bicycle riders must obey all traffic signs and signals:
- a) Always
- b) If traffic is heavy
- c) When necessary
- d) When traffic is light

_______31. What color should this sign be?
- a) Red
- b) Yellow
- c) White



_______32. Who has the right of way here?
- a) Pedestrian
- b) Bicycle
- c) Car
- d) Nobody



_______33. A red traffic light signal means:
- a) Slow down and be careful
- b) Stop and wait for the green light
- c) Stop and then go ahead
- d) Continue at present speed

_______34. The yellow traffic light signal means:
- a) Warning, the signal is changing to red
- b) Watch for cars
- c) Right turn only
- d) Cross the street

_______35. You should ride on the side of the street where traffic is coming toward you:
- a) Always
- b) Never
- c) Whenever there is little traffic
- d) Makes no difference

_______36. All bicycles must have:
- a) A bell or horn
- b) Light
- c) Rearview mirror
- d) Chain guard

_______37. It is safe for two people to ride on a bicycle:
- a) Sometimes
- b) If traffic is light
- c) Only if it has two seats
- d) Whenever the tires are properly inflated

_______38. A flashing red light signal means:
a) The same as a stop sign
b) Wait for the green light
c) Be careful
d) Go when there is no traffic

_______39. A red sign with eight sides always means:
a) Caution
b) Yield
c) Stop

_______40. When making a left turn at an intersection where traffic is moving in opposite directions, you should:
a) Turn as cars do
b) Walk your bicycle through the crosswalk
c) Don't turn left
d) Make a right hand turn.

ANSWER SHEET

BICYCLE RULES-OF-THE-ROAD TEST

1. T - So are pedestrians; anyone who uses the highway is part of "traffic."
2. T - Cars are not the only part of traffic you can run into - other cyclists are hazards, too.
3. T
4. T
5. F - Don't injure another just because they are in the wrong.
6. F - Bikers will end up in the hospital if they don't look out for themselves.
7. T - State law.
8. F
9. F
10. T
11. T
12. F - Why is the light flashing if a train isn't coming? Suppose your bike tires get caught in the tracks.
13. F - Signalling is important anywhere.
14. F - Certainly not - bikers follow the same rules as auto drivers.
15. T
16. F - Sudden starts and stops can throw you and your bike into other traffic.
17. F - Signal with left hand and use proper signal. Drivers will see left hand more easily.
18. F
19. T
20. T
21. T - Just like a car.
22. F - Need about 2 cm. of slack.
23. T
24. T - State law.

25. F - Wear white or very light colors.

Multiple choice:

26. c
27. b
28. b - Don't let the bahana seat fool you.
29. c
30. a - Just like car drivers.
31. b
32. a
33. b
34. a
35. b - One small exception - after crests of hills if there is no oncoming traffic.
36. b - If driven at night.
37. c
38. a
39. c
40. b

SUBCONCEPT B: RULES OF THE ROAD FOR TURNING AT INTERSECTIONS

The rules and regulations which must be followed by bicyclists when they wish to make turns should also be emphasized. These procedures are necessary to keep from having accidents and to prevent interference with other traffic.

Always give the proper signal in a town or city 30 meters (100 feet) before you turn. This is about the width of two lots. Outside of the town or city, the signal must be made 60 meters (200 feet) in advance of the turn.

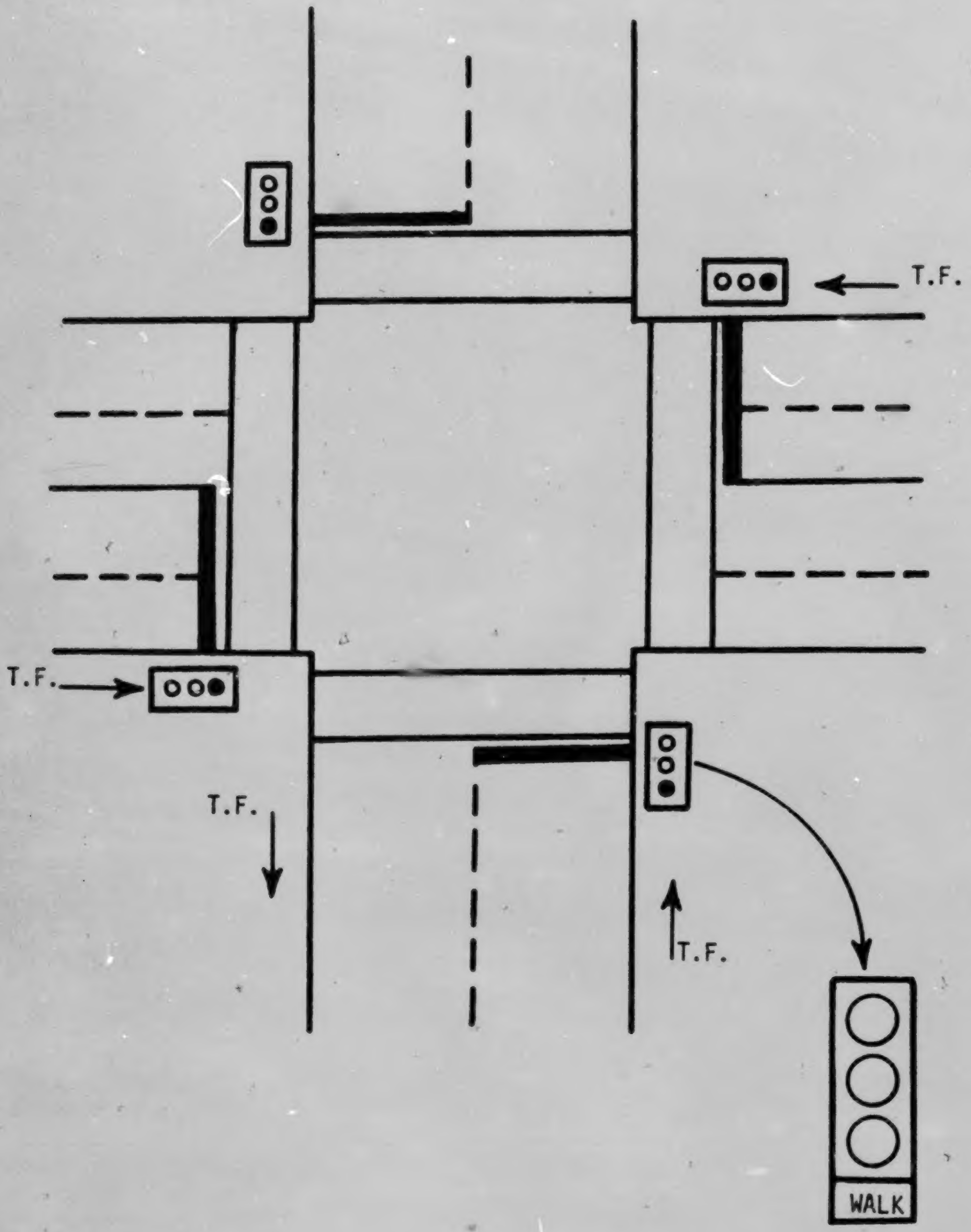
1. Stop signal is made by extending the left arm and hand out and bending the elbow at a right angle with the hand pointed downward.
2. Left Turn hand signal is made by extending the left arm out straight.
3. Right Turn hand signal is made by extending the left arm out and bending the elbow at a right angle with the hand pointed up.

SUBCONCEPT B: RULES OF THE ROAD FOR TURNING AT INTERSECTIONS (cont)

Objective	Activities
Students will demonstrate the proper procedures when turning at intersections.	1. Classroom demonstration and discussion of proper hand signals. 2. Given pictures of different intersections, the students will diagram correct turning movements by: a. drawing correct hand positioning, b. communication (type of signal, how soon), and c. path of travel for turning movement (Use masters for reproduction #3, 4, and 5 for turning maneuver diagrams[2] and answer sheets, pp. 64 - 66. Refer to Concept 1: Identifying Bike Hazards, Subconcept C, p. 42, for additional information. 3. Using intersection transparencies #1, #2, #3, and #4 (masters for reproduction 6-9), the teacher will lead a discussion of proper action on the part of the bicycle rider approaching each intersection.[2]

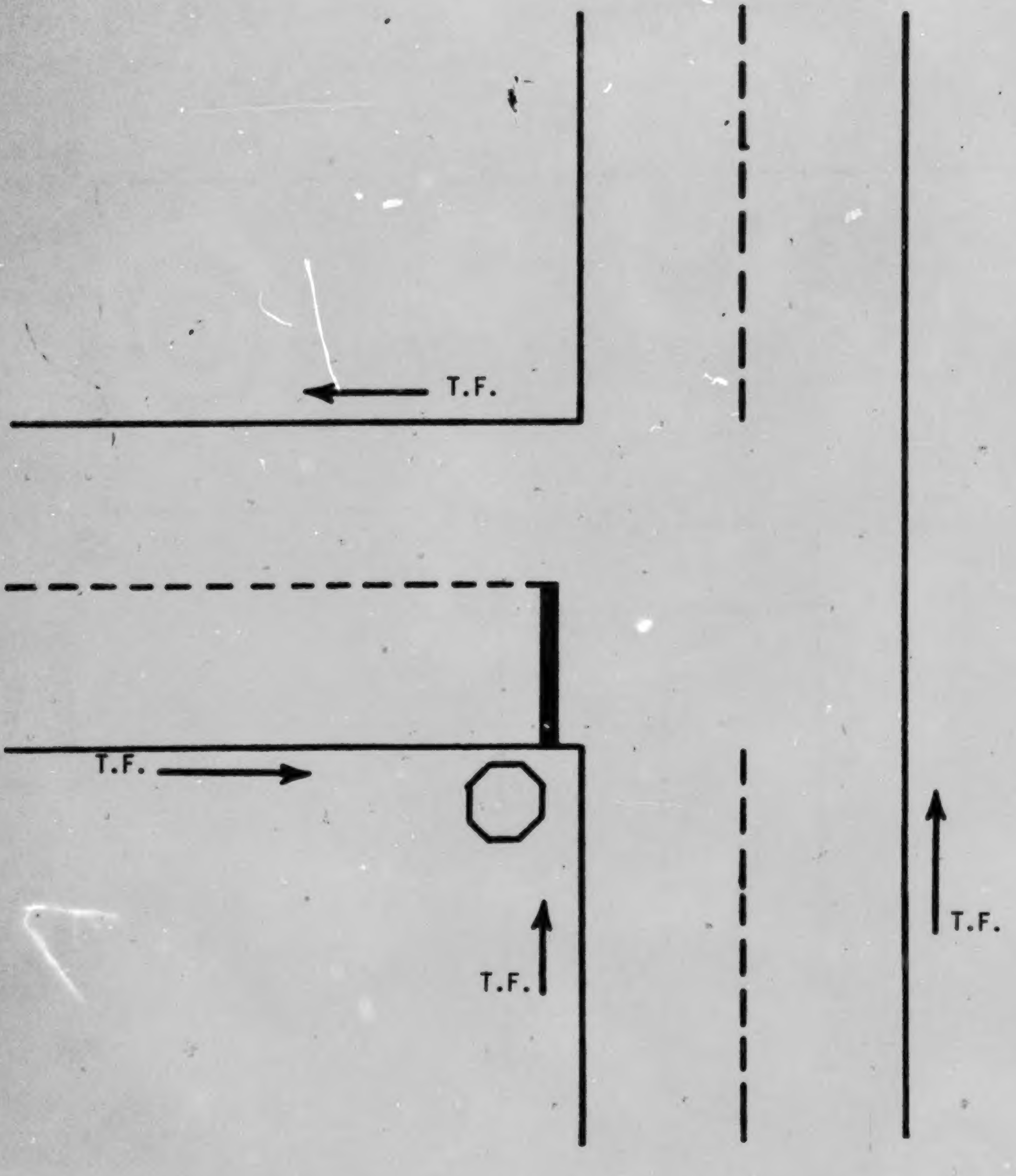
TURNING MANEUVER #1

Draw a line tracing the route you should take when making a left turn as you approach the intersection from the south (the street at the bottom of the page). Indicate signals by a star and any halts by a circle. Is there more than one way to make this turn? What would effect your decision as to how you would make the turn?



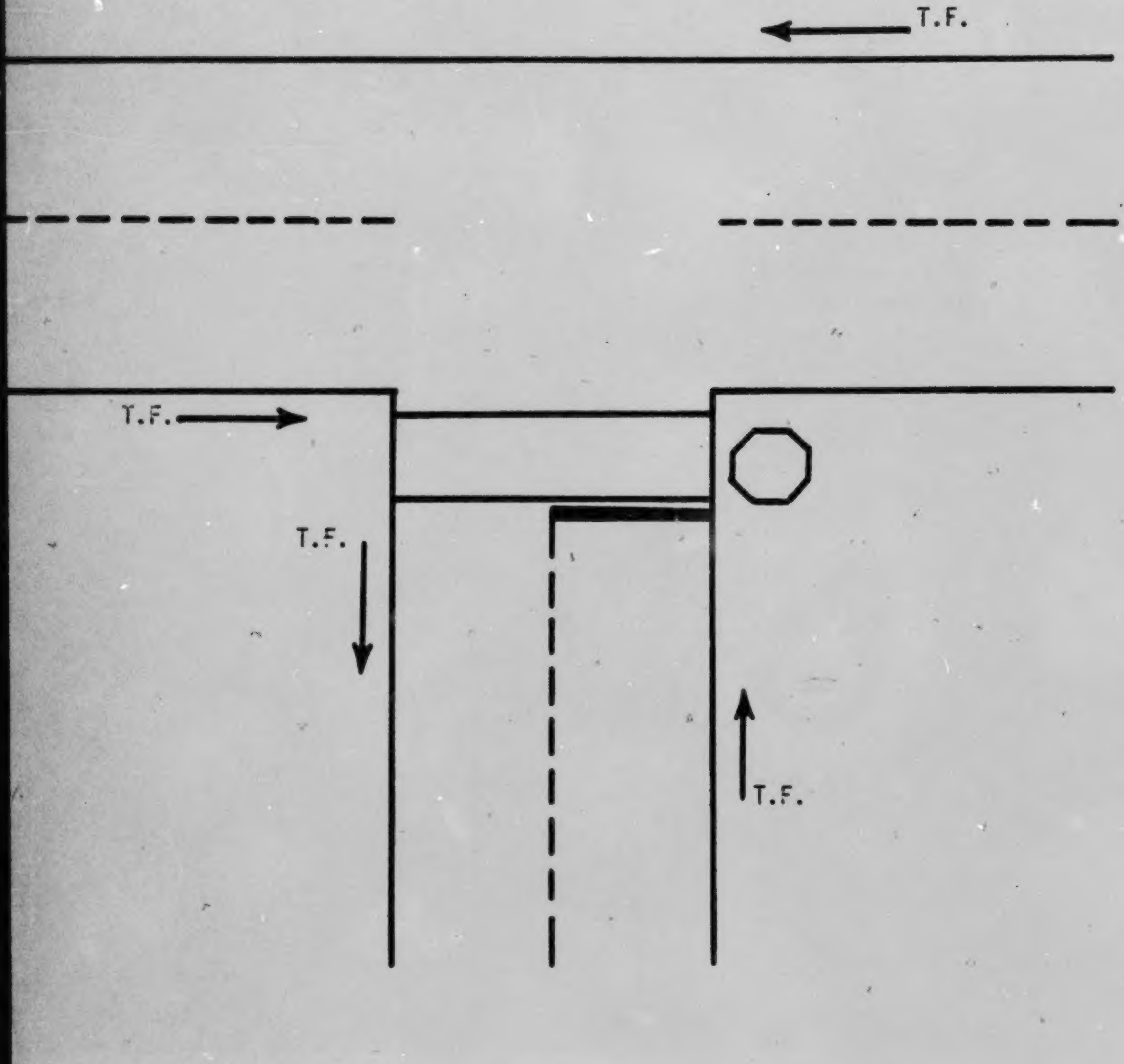
TURNING MANEUVER #2

Draw a line tracing the route you would take when making a left turn from the two-way street in to the one-way two-lane street. Indicate signals by a star and halts by a circle.

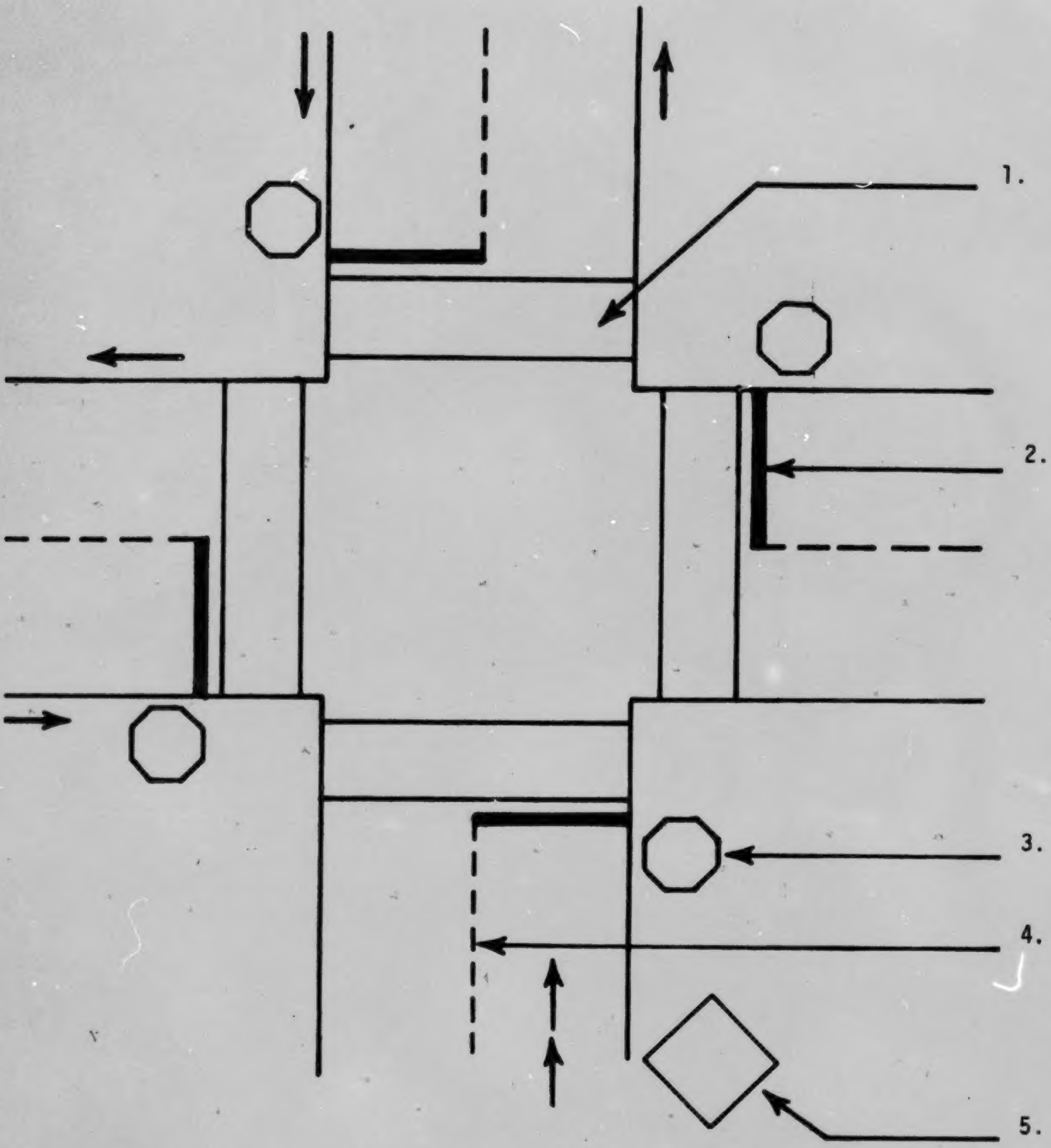


TURNING MANEUVER #3

Draw a line tracing the route you would take when making a left turn from the east (right side of page) on to the street to the south. Indicate signals by a star and halts or slowing by a circle. Draw a dotted line to show the route you would take making a left turn from the south (bottom of page). Use the same symbols for signals and halts.

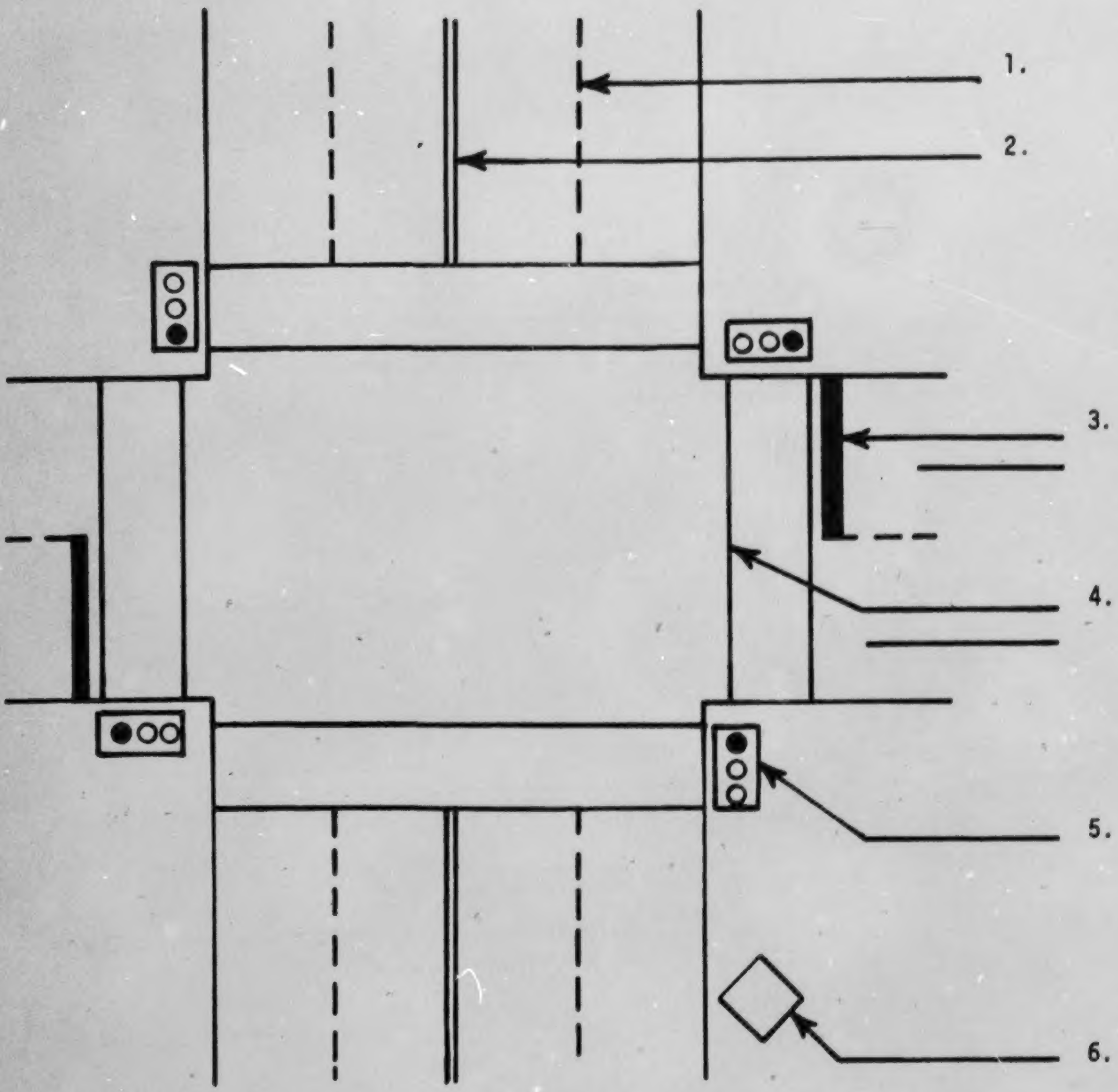


INTERSECTION TRANSPARENCY #1



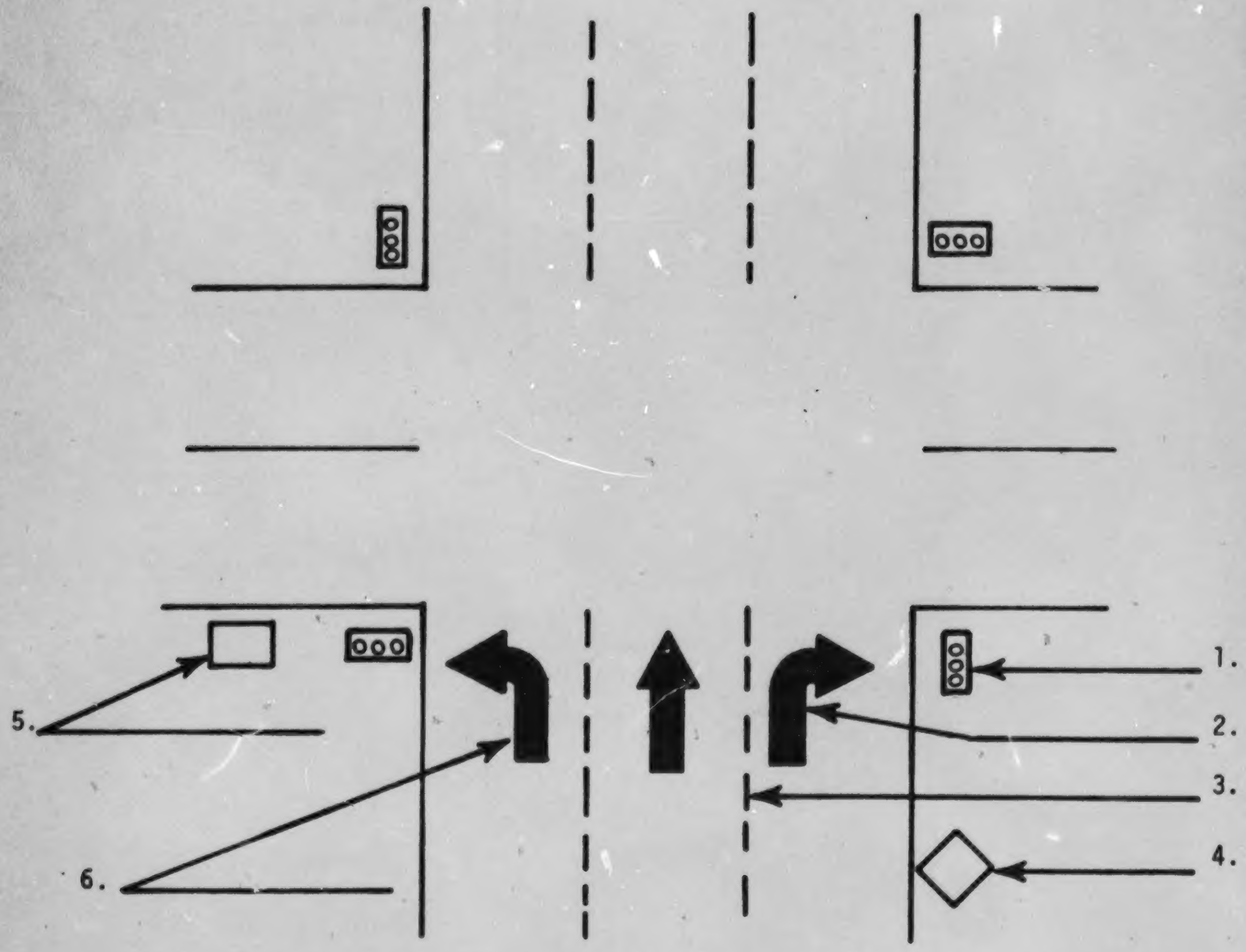
Directions· Identify the situation, signs, signals and pavement markings in this diagram. Draw a line indicating the path you would take when making a left turn from the west (left of page) on to the two-way street. Indicate signals by a star and halts by a circle.

INTERSECTION TRANSPARENCY #2



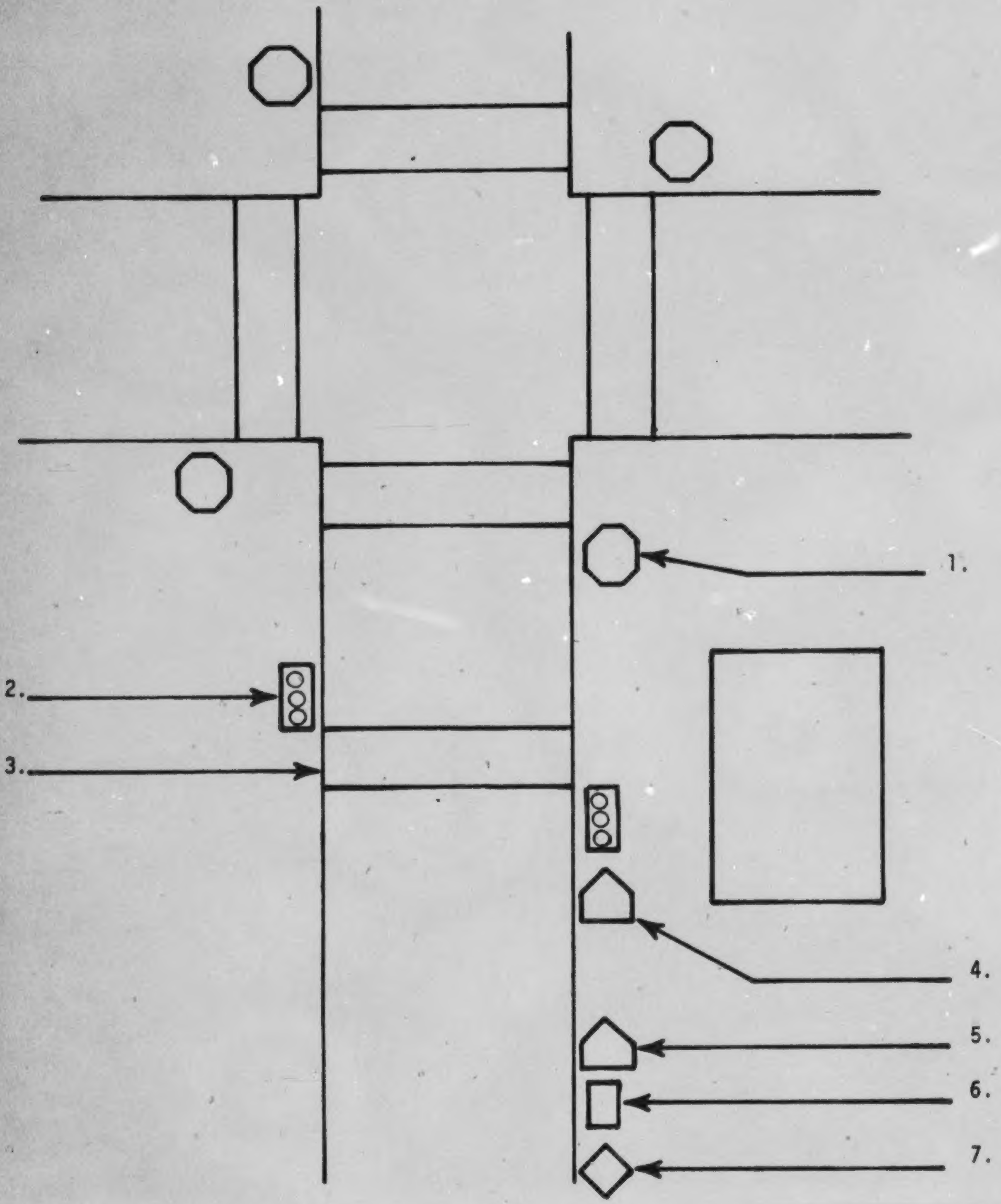
Identify the traffic signs, signals, and markings in the diagram. Draw a line tracing the route you would take marking a left turn from the south (bottom of page). Indicate signals by a star and halts by a circle.

INTERSECTION TRANSPARENCY #3



Identify the traffic signs, signals, and markings in the diagram. Draw a line showing the route you would take turning left from the south street (bottom of page). Indicate hand signals by a star and halts by a circle.

INTERSECTION TRANSPARENCY #4



Identify the traffic signs, signals, and markings in the diagram. Draw a line showing the path you would take past the school approaching from the south (bottom of page) and making a left turn at the intersection. Indicate hand signal by a star and halts by a circle.

SUBCONCEPT C: LAWS FOR NIGHT DRIVING

The law requires that a bicycle driven at night must be equipped with a white light at the front which is visible for at least 90 meters (300 feet) and a red light or reflector at the rear which is visible at least 60 meters (200 feet).

The most dangerous times for a bicyclist are periods of poor visibility, especially dusk and nightfall. When biking during these periods, the bicyclist must take extra precautions to insure that he will be seen by drivers of other vehicles. The following safety features provide this necessary protection:

1. Bicycle
   a. Headlight visible at least 90 meters (300 feet) (State law)
   b. Tail-light or reflector visible at least 60 meters (200 feet) (State law)
   c. Reflectorized strips added to fenders and pedals
   d. Reflectorized streamer added to handlebar grips
   e. Reflectors attached to spokes to give visibility from the side.
2. Bicycle Driver
   a. Wear light reflective clothing
   b. Attach stick-on reflectorized strips to clothing.

Objective	Activity
Students will state the laws of North Carolina relating to riding bikes at night and additional ways to protect the biker after dark.	Show the class a large piece of black construction paper. Ask "What is this a picture of?" The answer: a biker riding at night with no lights. If you wish to continue the metaphor, stick some reflective tape on the paper (reflectors for wheels and pedals can be attached to a spinner so that they rotate). Continue your discussion of the laws. Review the pedestrian section on being seen at night. Does the same thing apply to bikers?

CONCEPT III: BIKE MECHANICS

Subconcept	Goal
A. Bike Parts	Students will be able to identify the parts of a bicycle and their functions.
B. Why Have Gears on Bikes?	Students will understand the principle of energy exchange by gears.
C. Preventive Maintenance	Students will perform a maintenance check on their bikes periodically.
D. Bicycle Fit	Students will know the proper size bicycle for them.
E. Choosing the Right Bike for You	Students will know the basic types of bicycles and their uses.

SUBCONCEPT A: BIKE PARTS

A knowledge of the basic bicycle parts is needed to establish checklists or to perform preventive maintenance. Basic parts are described here and on one of the handouts to be distributed to the students.

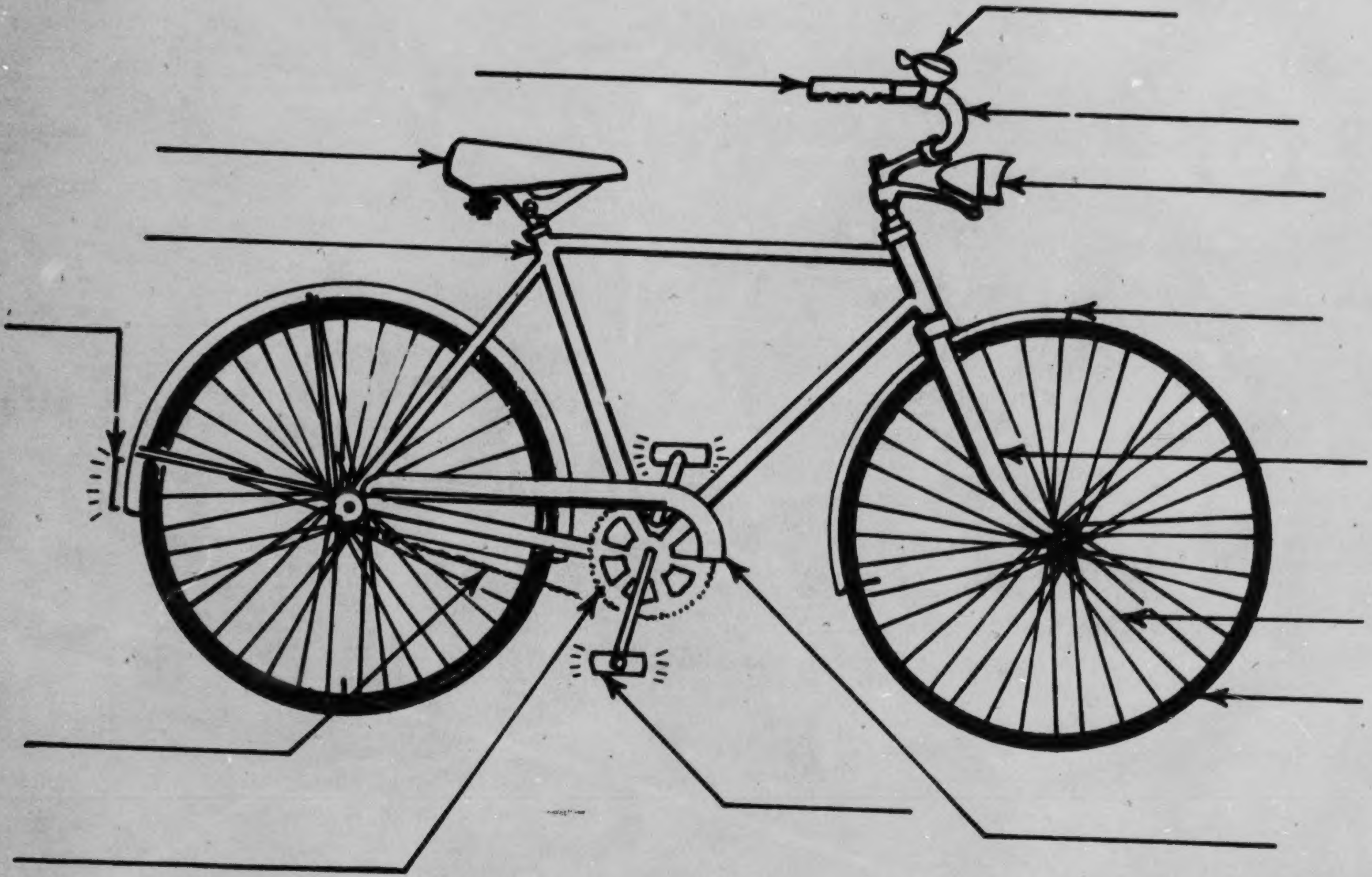
1. Kickstand - holds up bike when parked
2. Fork - connects frame and steering to front wheel
3. Wheel hub - where wheel is attached to front fork or rear
4. Tire - cushions shock of road and provides traction
5. Spokes - keep wheels straight
6. Tire valve - allows air to be pumped into tire
7. Fender - protects rider from mud, etc.
8. Light - provides visibility at night
9. Handlebars - steering device
10. Handle grips - insure driver has firm control of steering
11. Handlebar stem - connects handlebar to frame
12. Bicycle frame - supports driver and machine
13. Horn - warning device
14. Saddle - place driver is seated
15. Reflector - provides visibility
16. Brake - stops bike
17. Chain - connects gears (sprocket wheels) to provide drive
18. Wheel - moves bike
19. Chain guard - prevents clothing from entanglement in chain
20. Pedal - where driver puts energy into machine
21. Sprocket wheel - machine gear which takes energy from pedal thrust and applies it more efficiently to wheel

On different bicycles these parts are different and/or are in different places. These differences can be pointed out by the students or a bicycle salesman or serviceman.

SUBCONCEPT A: BIKE PARTS (cont)

Objective	Activities
Students will identify the parts of a bicycle and what each part does.	1. Using masters for reproduction #10, 11, and 12, have students identify the parts of the standard and 10-speed bicycle and their functions. If possible, bring a bicycle into the classroom for this purpose. 2. As a review, distribute reproduced pictures of a bicycle and have students label parts on masters for reproduction #10 and 12, pp. 79 and 81. 3. Distribute copies of Bicycle Crossword, master for reproduction #13, p. 84. 4. Distribute copies of Bicycle Word Find, master for reproduction #14, p. 86. 5. Have students bring in various types of bicycles to locate corresponding parts on the different bicycles.

BIKE PARTS



BIKE LABELS

BELL

HANDLEGRIPS

HANDLEBARS

SADDLE

FRONT LIGHT

FRAME

FENDER

REFLECTOR

FORK

SPOKES

TIRE

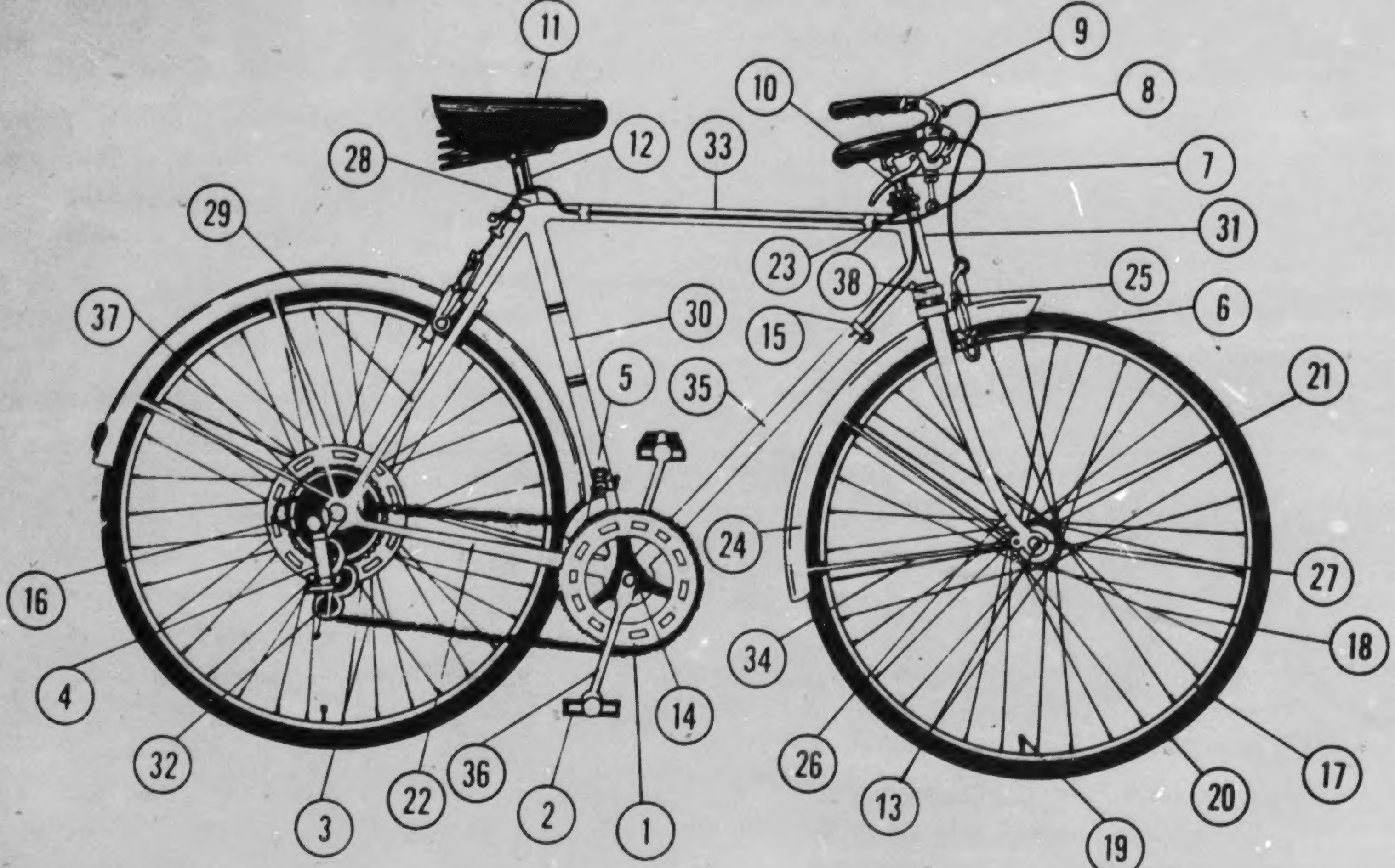
CHAIN

PEDALS

CHAIN GUARD

CHAIN WHEEL
(OR SPROCKET)

TEN-SPEED BIKE PARTS


11
9
10
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12
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31
23
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25
37
30
15
6
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24
27
16
34
18
4
14
32
36
26
17
3
22
2
1
13
20
19

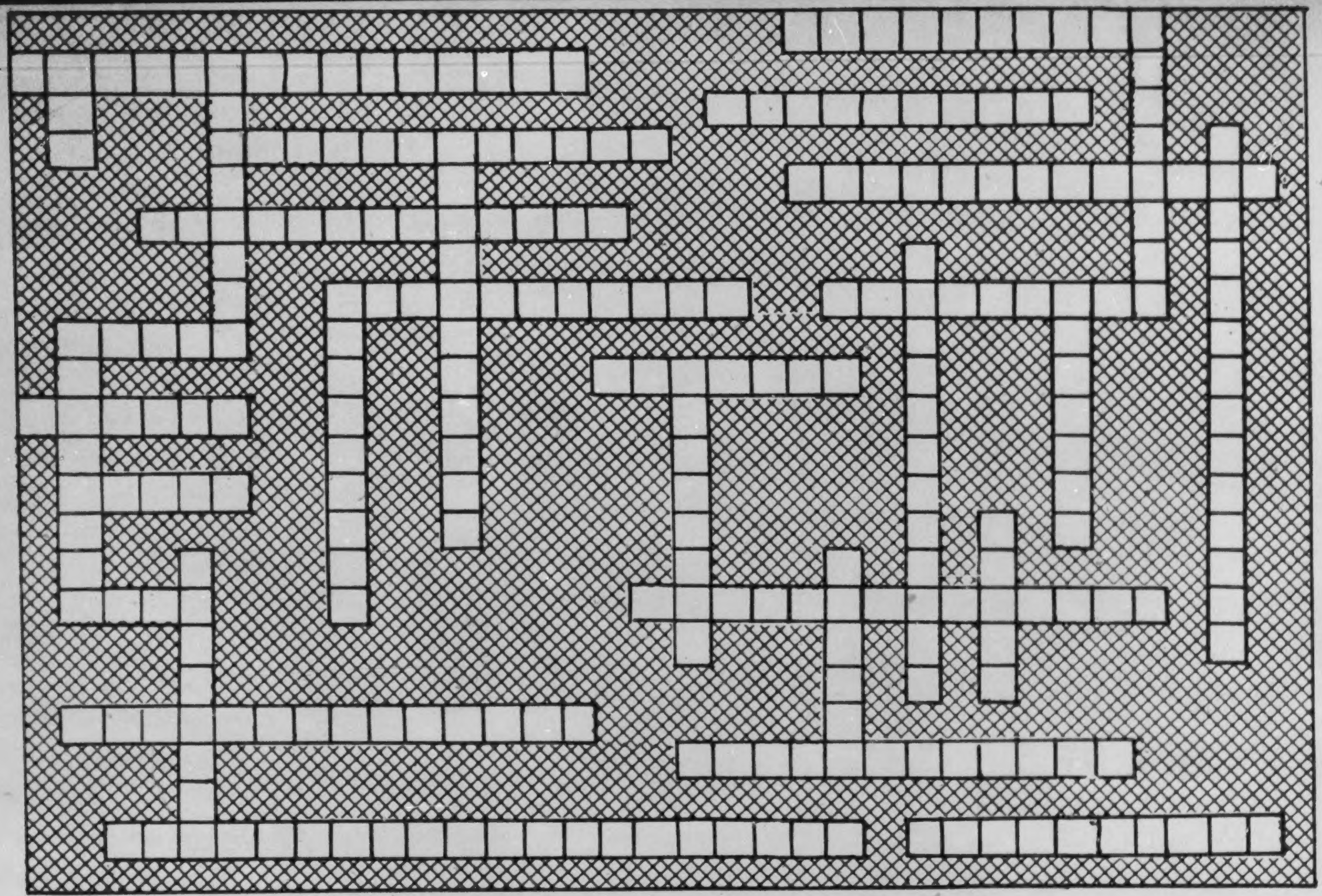
KEY TO TEN-SPEED BICYCLE PARTS

1. Chain wheel - gear which moves sprocket chain
2. Pedal
3. Chain
4. Rear derailleur - device which slips the chain from one gear to another
5. Front derailleur - same as above, except for front wheel (racers usually have two front gears; 5-speeds usually only one)
6. Caliper brake - stopping device operated by hand levers which works by grabbing wheel rim between "pincher" type brake pads.
7. Brake lever - levers mounted on handlebars to work caliper brakes
8. Brake cable - wire running from brake levers to brake pads
9. Handlebars - curved bars used to steer
10. Handlebar stem - tube which adjusts height of handlebars
11. Seat (saddle)
12. Seat post - adjusts height of seat
13. Quick-release skewer - device for instant wheel removal
14. Bottom bracket - short, round tube holding crank axles, to which both seat and down tubes are brazed or welded
15. Gear shift lever for rear derailleur (some bikes have front and rear gear shift levers)
16. Freewheel gear cluster - "Freewheel" means the gears move free if pedals are not being pushed, as in coasting. Fixed gear clusters mean the pedals will turn at all times - even if coasting.
17. Rim - part of the wheel that isn't tire, spokes or hub. Tire is attached to rim.
18. Spoke - thin metal wires used to keep tire straight and round
19. Valve - device used to allow air to be pumped into tire
20. Tire - there are several types of tires. Tubular tires are for racing and touring in the country. The tire material is stitched together, forming a continuous tube. They are easy to change but hard to repair. Wired-on tube tires are best for city streets. They puncture less easily than tubulars and last longer in urban streets.
21. Hub (high-flange type) - front or rear wheel unit drilled to receive spokes and machined to hold wheel axle and bearings
22. Chainstay - section of frame from bottom bracket to rear wheel dropout

KEY TO TEN-SPEED BICYCLE PARTS (cont)

23. Lug - an ear-shaped metal fitting used to connect frame tubes
24. Fender
25. Fork crown - flat or sloping part at top of fork, just under steering head
26. Fork - front or rear part holding wheel drop-outs. Front fork is turned by handlebars to steer bike
27. Wheel dropout - part into which the wheel axle fits
28. Seat cluster lug - three-way fitting into which top and seat tubes and seat stay are brazed or welded
29. Seat stay - part of frame extending from seat to rear wheel dropout
30. Seat tube - part of frame extending from seat to bottom bracket
31. Steering head - large diameter tube which holds front fork and back bearings, into which top and down stays are brazed or welded
32. Tension roller, rear derailleur - roller to keep correct tension on chain
33. Top tube - horizontal frame part
34. Fender brace - holds fender firm
35. Down tube - part of frame from steering head to bottom bracket
36. Cotterless crank - the pedals are on the ends of the crank, the part which spins the chain wheel. Cotterless cranks are the best type of crank mechanism. Without a cotter (a peg which fastens the crank to frame) the mechanism works better and is easier to repair.
37. Rear dropout - part into which wheel axle fits
38. Headset (top and bottom) - part which holds fork bearings

BICYCLE CROSSWORD



Directions: The student will fill in blanks from the word list. Only one word has been filled in-front derailleur.

chainwheel
pedal
rear derailleur
front derailleur
caliper brake
brake lever
brake cable
handlebars
handlebar stem
saddle
seat post
bottom bracket
gear-shift level
freewheel gear cluster
rim
spoke
valve
tire
hub (high flange type)
chainstay
fender
fork crown
fork
wheel dropout
seat cluster lug
seat stay
seat tube
steering head
top tube
fender brace
down tube
rear drop out
headset (top & bottom)

ANSWER SHEET
BICYCLE CROSSWORD

```
                                        H A N D L E B A R S
F R O N T D E R A I L L E U R                             E
  I       O                         B R A K E L E V E R   A
  M       W H E E L D R O P O U T                         T   G
          N           E                 H A K D L E R A R S T E M
      B O T T O M B R A C K E T                           T   A
          U           R                       C           A   R
          B     F E N D E R B R A C E     C H A I N S T A Y   S
  S P O K E     O     R           H           L       O       H
  E             R     O       H E A D S E T   I       P       I
S A D D L E     K     P           I           P       T       F
  T             C     O           N           E       U       T
  P E D A L     R     U           W           R       B       L
  O             O     T           H           B   V   E       E
  S     S       W                 E       F   R   A           V
  T I R E       N               R E A R D E R A I L L E U R   E
        A                         L       N   K   U           R
        T                                 D   E   E
  S E A T C L U S T E R L U G             E
        U                         S T E E R I N G H E A D
        B
    F R E E W H E E L G E A R C L U S T E R   B R A K E C A B L E
```

BICYCLE WORD FIND

K	I	C	K	S	T	A	N	D	A	F	E	I	R
O	U	A	H	U	B	E	I	O	H	O	R	N	E
B	A	A	E	A	E	I	O	T	I	R	E	U	F
Z	R	I	D	E	I	B	T	T	O	K	B	B	L
R	B	A	A	A	B	N	C	O	O	B	C	O	E
F	U	G	K	H	I	O	U	L	I	G	H	T	C
A	H	L	A	E	W	B	B	I	O	I	O	U	T
B	B	A	E	C	H	A	A	P	E	D	A	L	O
S	A	E	N	S	E	T	I	O	U	A	B	A	R
E	F	E	N	D	E	R	E	F	R	A	M	E	S
K	C	A	B	B	L	L	E	N	A	B	T	T	T
O	S	B	C	E	B	E	D	E	S	B	B	C	E
P	E	A	A	V	B	C	B	D	D	P	O	M	M
S	A	D	D	L	E	A	C	A	T	T	E	A	A
B	T	B	C	A	D	G	U	A	R	D	A	E	D
A	A	B	B	V	C	C	D	D	E	S	E	F	D
S	P	R	O	C	K	E	T	W	H	E	E	L	Z

Find and circle these words in the puzzle:

kickstand
fork
hub
tire
spokes
valve
fender
light
handlebars
speed
stem
frame
horn
saddle
reflector
brake
chain
wheel
guard
pedal
sprocket wheel
ride
seat
rules

ANSWER SHEET

BICYCLE WORD FIND

K	I	C	K	S	T	A	N	D	A	F	E	I	R
O	U	A	H	U	B	E	I	O	H	O	R	N	E
B	A	A	E	A	E	I	O	T	I	R	E	U	F
Z	R	I	D	E	I	B	T	T	O	K	B	B	L
R	B	A	A	A	B	N	C	O	O	B	C	O	E
F	U	G	K	H	I	O	U	L	I	G	H	T	C
A	H	L	A	E	W	B	B	I	O	I	O	U	T
B	B	A	E	C	H	A	A	P	E	D	A	L	O
S	A	E	N	S	E	T	I	O	U	A	B	A	R
E	F	E	N	D	E	R	E	F	R	A	M	E	S
K	C	A	B	B	L	L	E	N	A	B	T	T	T
O	S	B	C	E	B	E	D	E	S	B	B	C	E
P	E	A	A	V	B	C	B	D	D	P	O	M	M
S	A	D	D	L	E	A	C	A	T	T	E	A	A
B	T	B	C	A	D	G	U	A	R	D	A	E	D
A	A	B	B	V	C	C	D	D	E	S	E	F	D
S	P	R	O	C	K	E	T	W	H	E	E	L	Z

SUBCONCEPT B: WHY HAVE GEARS ON BIKES?

You know how hard you have to pedal to go uphill on a regular middleweight bike. And to go fast you have to turn the crank many times and very quickly. Well, with the help of a simple machine called a gear, you can do both uphill climbing and fast driving with much less effort. Even on a regular bike, gears are at work to help you travel farther with less effort. There is a chain wheel which is large and has many teeth and in the hub of the rear wheel there is a smaller sprocket wheel. When you turn the crank around once, the front chain wheel turns once, but the rear wheel will be pulled around several times by the chain wheel. If the gear ratio is 50 teeth to 25 teeth (2 to 1) your rear wheel turns twice for every time you turn the chain wheel once.

When you add many gears you multiply the benefits of gear drive. The basic purpose of multigear biking is to use the same amount of energy to turn the pedals, but to change that energy into one of two things--power or speed. If you want to go uphill, you need more power. So you want to turn the chain wheel (using the same amount of force) so that the rear wheel turns more slowly than the chain wheel. What do you do? You need a low gear - one where the rear gear is larger than the chain wheel gear. If you want speed, that means the wheels (rear gear) must turn faster than the chain wheel for the same amount of energy you use. So you gear up into high gear, the chain then slips to another smaller rear gear, so that rear gear is smaller than the chain wheel.

It's all a simple process of exchanging power for speed or speed for power while you use the same amount of energy.

SUBCONCEPT B: WHY HAVE GEARS ON BIKES (cont)

Objective	Activities
Students should understand the principle of energy exchange using gears.	1. To illustrate the principle of bicycle gears, have the students cut out two round pieces of cardboard 20 and 5 centimeters in diameter. Make teeth by cutting notches around the outside of each circle. Fasten the cardboard gears to a piece of wood by thumb tacks placed through the centers. Make sure the teeth of one gear fit into the teeth of the other gear. Mark a tooth on the larger gear and the place that tooth fits in the smaller gear. Turn the large gear around once. How many times does the small gear turn? Can you see why you go fast on a bike even while pedaling slowly? Match up the marks again and turn the small gear around once. How much does the large gear turn? Ask "Would you want the rear gear to be small or large if you were pedaling uphill? going faster on a straight stretch?" 2. Use a 10-speed bike to explore how the gears work. (You'll have to walk the bike around the classroom because free wheel geared bikes will

SUBCONCEPT B: WHY HAVE GEARS ON BIKES (cont)

Objective	Activities
	keep turning and will confuse your experiments. Don't change gears while the bike is stationary; you'll damage the mechanism.) Mark the rear wheel with a piece of color tape or yarn so that you can count the revolutions. (Practice changing the gears and turning the wheels before class so you are comfortable operating the derailleur.) Play a guessing game with the students. Put the bike in a low gear and have them watch the rear wheel turn. Ask them to guess what gear the bike is in and where they would use that gear. Experiment with other gears. 3. If you are a math or science teacher, you might want to use gear ratios in your lessons. Standard rear sprocket clusters for the average bike come with 28, 24, 20, 16, and 14 teeth and front chain wheels with 40 and 50 teeth. Ask the students to figure the ratios of the 10 possible combinations. Which are most efficient for uphill riding, flat cruising, high-speed travel?

SUBCONCEPT C: PREVENTIVE MAINTENANCE

To insure safe riding and a longer life for the bicycle, the following simple maintenance procedures are suggested:

1. Inflate tires to pressure suggested on sidewall.
2. Remove imbedded cinders and debris from tires; check for cracks and signs of wear in tread.
3. When changing tire, make sure it is the right size and brand for your bicycle.
4. Replace worn batteries, tires, spokes, pedals, and grips.
5. Clean chain by removing and soaking thoroughly in kerosene; wipe dry; soak in lubricating oil. Wipe dry and replace. (For derailleur type bikes a special tool is needed to remove chain.)
6. Clean bearings with kerosene and refill with light grease occasionally.
7. Let qualified serviceman maintain coaster brakes and hand brakes.
8. Oil everything that moves about once a month. Exceptions: Be sure there is no oil on the rim or tires.

If a bicycle is to be stored for a long period of time, it should be kept in a cool, dry place and hung off the ground. Tires should be deflated 50 percent.

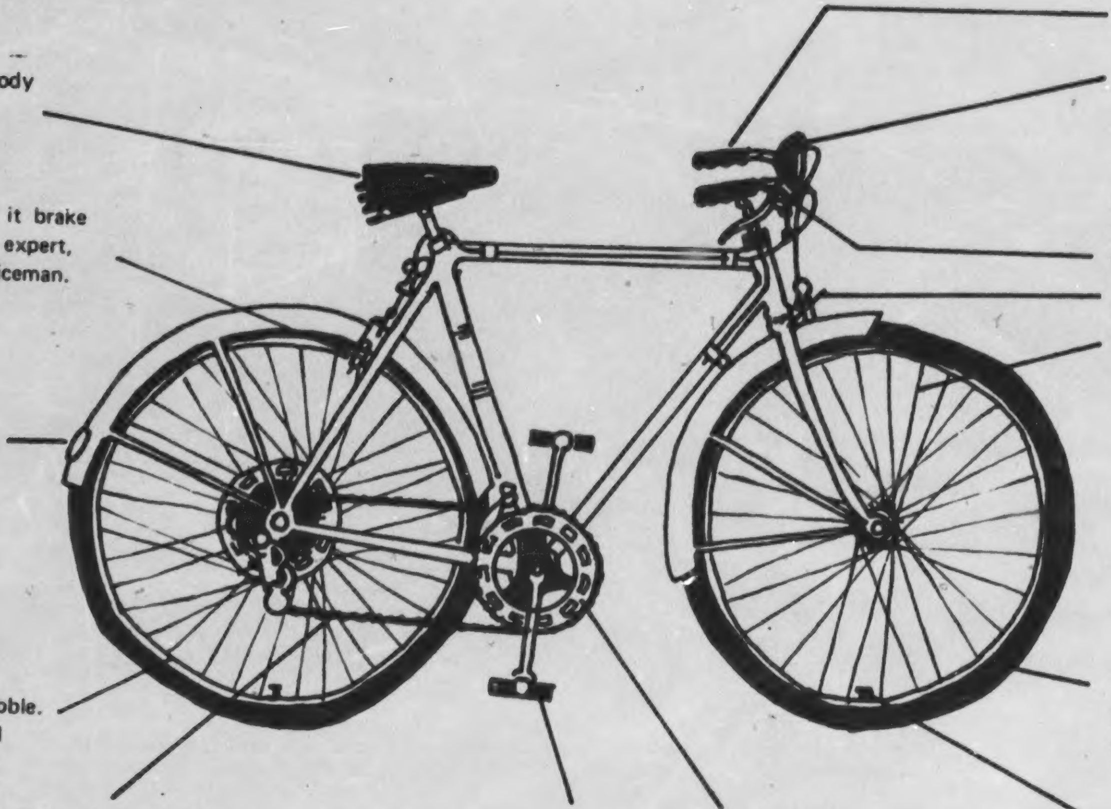
Keep in mind that one out of four bicycle accidents involves a bicycle which is not in proper mechanical condition.

SUBCONCEPT C: PREVENTIVE MAINTENANCE (cont)

Objective	Activities
Students will demonstrate ability to keep their bikes in safe working order.	1. Discuss bike maintenance procedures using master for reproduction 15[2], p. 95. 2. Have class develop a preride checklist. A format is suggested on page . 3. Using the pamphlet, Helpful Hints on Bicycle Care for Safer Riding (free from the Bicycle Manufacturer's Association of America, 1101 15th St. NW., Suite 304, Washington, D.C. 20005) discuss: a. Making minor repairs. b. Determining repairs not to be attempted by an untrained person. c. Basic tools and equipment (tire pump, tire gauge, etc.)[2] a bike owner should have. 4. Go to bike rack on school grounds. Let students inspect their own bikes. Sponsor a schoolwide inspection. 5. Invite qualified repairmen to demonstrate simple maintenance and repairs. 6. Use the National Safety Council's Bicycle Safety Maintenance Manual to discuss maintenance check procedures. Bring a bike into the classroom; check it, or organize a maintenance clinic as

Objective	Activities
	described in the manual. 7. Other references with detailed information about repairs and maintenance are: Consumer Guide to Bicycles (Popular Library 445-08200-150); The New Complete Book of Bicycling (Eugene Sloane, New York, Trident Press, 1974). These are simple to read; illustrations are step-by-step drawings. Anybody's Bike Book (Tom Cuthbertson, Ten Speed Press); Bicycle Repair and Maintenance (Ben Burstyn, Arco Publishing Co., Inc.); Bicycle Repair (5-, 10-, & 15-speed) and Bicycle Repair (coaster & 3-speed--both from the XYZYX Information Corporation, Crown Publishers, Inc. How to Fix Your Bicycle (Technical Publications Div., Intertec Publishing Corp.). 8. Use the filmstrip Bike Clinic (Department of Public Instruction). It shows in detail how to repair a 10-speed bike. Package includes a student take-home manual.

BIKE MAINTENANCE PROCEDURES



SADDLE: Adjust to body and tighten all nuts.

HAND BRAKE: Does it brake evenly? Unless you're an expert, have it adjusted by a serviceman.

REFLECTOR: Must be visible for 300 feet.

WHEELS: Eliminate wobble. Tighten wheel nuts and oil bearings.

CHAIN: Check for damaged links. Secure snug fit. Clean and lubricate frequently.

PEDALS: Lubricate and tighten pedal bearings and spindle. Replace worn pedal treads.

CRANK HANGER: Keep clean and greased. If it wobbles, have serviceman make adjustments.

HANDLE GRIPS: Replace worn handle grips. Cement them on tightly.

LIGHT: Must be visible for 300 feet.

HANDLEBARS: Adjust to body Tighten and keep stem well down in fork.

FORK BEARINGS: Lubricate.

SPOKES: Replace broken one promptly.

TIRES: Inflate to correct pressure. Remove imbedded metal, glass, cinders, etc.

TIRE VALVE: Inspect often for leaks.

SUGGESTED BICYCLE MAINTENANCE CHECKLIST[2]

Student's Name________________________________ Boy_____ Girl _____
Address____ Age _____
Bike Color__________________, Style: Boy's_____ Girl's_____ Size _____
Serial Number________________________ City License Number__________
Parent(s) Name____

	CONDITION		
	GOOD	FAIR	POOR
I. HEADLIGHT, REFLECTOR AND HORN			
Headlight - 300 feet			
Red rear reflector			
Horn or bell in working order			
II. FRONT WHEEL			
Rolls true without wobbling			
Free turning			
Spokes			
Bearing and nuts			
III. REAR WHEEL			
Rolls true without wobbling			
Free turning			
Spokes			
Bearing and nuts			
Brake band			
IV. TIRES			
Cracks due to age			
Tread on tires			
Inflation: correct pressure			
Valves straight and capped			

	CONDITION		
	GOOD	FAIR	POOR
V. HANDLEBARS AND FORK			
Handlebars adjusted to rider			
Bars and grips tight			
Fork bearing			
VI. SADDLE (SEAT)			
Adjusted to driver			
Secured tightly			
VII. CRANK ASSEMBLY			
Sprocket teeth present			
Pedals with good tread			
Chain guard tight			
Chain with correct tension			
VIII. FRAME AND FENDERS			
Frame straight and sturdy			
Fenders tight			
IX. BRAKE			
Stops evenly			
Stops quickly			
GENERAL CONDITION			

SUBCONCEPT D: BICYCLE FIT

Loss of control because a bike is too large or too small to handle causes many accidents. When choosing a bike, students should consider:

1. When straddling the crossbar, a student's feet should be flat on the ground.
2. When sitting on the seat with the ball of the foot pressing on the low pedal, that leg should be bent slightly at the knee and the upper part of the body should be inclined slightly forward.
3. The seat should be parallel to the ground.
4. Handle grips should be approximately the same height as the seat and at right angles to the handlebar stem.

Fitting a bicycle correctly is one of the most important points to safe total riding performance. It is impossible to overemphasize this point!

Bicycle riding is unique: it exercises all muscles. When muscles are used in teamwork, cycling is a pleasure and fatigue is greatly reduced. Correct seat positioning--height, angle, and location--is necessary for this teamwork and pleasure to be achieved. Correct seat position is determined by having someone hold the bicycle upright, seating the rider solidly on the saddle, placing the heels on the pedals, rotating the cranks until one pedal is in the low position, and raising the seat until the rider's leg is straight. When the ball of the foot is on the pedal, there should be a slight bend in the leg.

When the seat is too low, it is not possible to use the ankles properly. Instead of a smooth, continuous flow of power, the rider would propel the bicycle with a series of leg thrusts. This means a wobbling, tiring ride. Too high a seat prevents effective use of the legs and leads to a rougher ride when roads are bumpy.

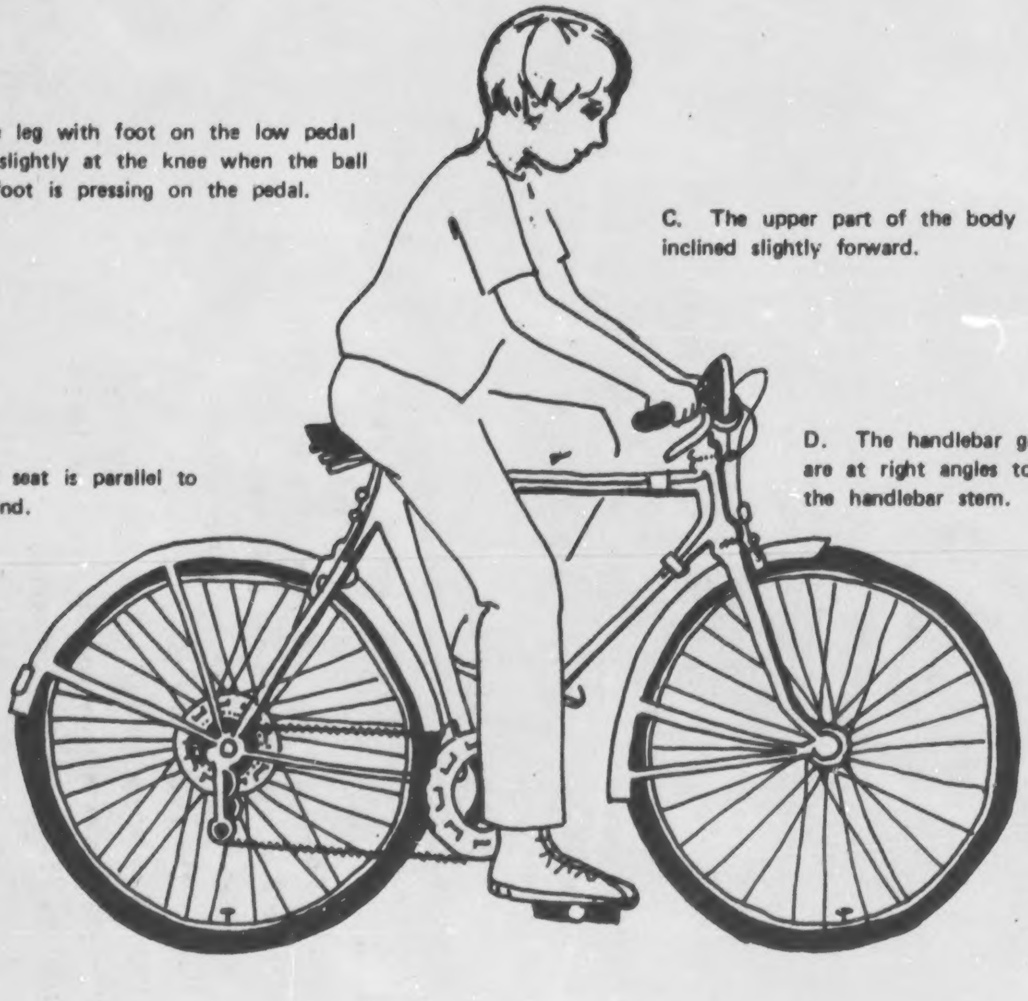
Another method of determining the proper-sized bike is the length of your legs. Measure the leg from the crotch to the floor in flat-heeled shoes. This measurement should fit closest to the wheel and frame sizes available. Remember that the height of the seat can be adjusted about 2 inches up or down for maximum comfort.[2]

SUBCONCEPT D: BICYCLE FIT (cont)

Objective	Activity
Students will be able to determine the proper size of bicycle for their heights.	Discuss factors which determine the proper size bicycle for an individual using master for reproduction #17, p.101.

Things To Remember When Selecting The Proper Size Bicycle

When the rider sits on the saddle with the ball of one foot on the low pedal and grasps the handlebars as though riding, the following should be noted:



A. The leg with foot on the low pedal is bent slightly at the knee when the ball of the foot is pressing on the pedal.

B. The seat is parallel to the ground.

C. The upper part of the body is inclined slightly forward.

D. The handlebar grips are at right angles to the handlebar stem.

SUBCONCEPT E: CHOOSING THE RIGHT BIKE FOR YOU

There are many sizes, shapes, and weights of bicycles. Bicycles can be used for work, recreation, and transportation. Students should consider needs and the amount of money before buying a bicycle.

The standard bicycle offers advantages for some types of work. Since it's heavier than the other three types, it can carry heavier loads and there are fewer parts to wear out. If speed and maneuverability are of great importance, the 3- or 10-speed bike should be considered.

The 3-speed and the 10-speed are used primarily for recreation and transportation. The 3-speed is generally less expensive and works fine if the terrain is relatively flat. The 5- and 10-speeds are lighter, and increased gear ratios make going up hills easier; and on straight level roads, more speed can be obtained. There are two kinds of multigeared bikes - the tourer and the racer. For most cyclists the 5-speed tourer is the best choice. Ten-speed racers are necessary only if you plan long-distance touring (120 km a day) or racing.

SUBCONCEPT E: CHOOSING THE RIGHT BIKE FOR YOU (cont)

Objective	Activities
Students will know the different types of bicycles and their uses.	1. Discuss with students the information necessary to properly select a bicycle using the following guide: a. Purpose for which bicycle will be used. b. Types and styles available. c. Evaluation of advantages and disadvantages of types relative to purpose.[2] 2. Writing assignment: "The Best Bicycle for Me." Include information to justify choice. 3. Take a field trip to a bike shop or ask a bicycle salesman to visit the class to discuss the different types of bicycles. Keep in mind that the salesperson is a sales person. If the sales pressure is high, seize the opportunity to give your students a lesson in consumer education. 4. The references listed in the Preventive Maintenance subconcept p. 94 are excellent sources for this subconcept also.

CONCEPT IV: PREVENTING THEFT

A. Bicycle Thefts
  1. Bicycle thieves are of two types:
    a. The "borrower" who takes a bike and abandons it later.
    b. The professional thief who has increased ability to move stolen goods because of the bike boom and who has special tools, such as chain cutters, to steal with.
  2. Return of stolen bikes is low - because bikes aren't registered.
    a. If your town has a bike registration program, use it.
    b. Write down the serial number of your bike and keep it in a safe place at home.

B. Securing Your Bike
  1. Park in upright position using the kickstand or a bike rack.
  2. Pull chain through the wheel and frame and attach to something solid and immovable. (Locking just wheel and frame simply means the thief will pick it up and carry it away.)
  3. Use a heavy-duty, case-hardened chain and lock with a shackle of not less than 1 cm (3/8") in diameter. (Especially if you live in an urban area.)
  4. Park your bike in conspicuous places. Do not leave it outside at night - bring it indoors.
  5. Record your serial number. (Be sure you get the serial number, not the model number.) Another help for the police--take a color photo of your bike, getting the whole bicycle in the picture. If your police force has a registration program, use it.

CONCEPT IV: PREVENTING THEFTS (cont)

Objectives	Activities
1. Students will recognize the severity of theft problems. 2. Students will demonstrate the proper procedures for preventing theft of a bike.	1. Have students research and report on severity of bicycle theft in local areas. Include investigation of possible means of reducing theft rate (bicycle registration programs, public education on severity of problem, and necessary precautions such as the use of chain locks.) 2. Invite police official to discuss the number of bicycles stolen each year and the difficulties associated with combatting the problem. 3. Conduct school survey on student knowledge and practice of proper means to secure bike. 4. Class demonstration of proper method for securing a bicycle. 5. As a class project, have the students design a bike I.D. card. Have the students with bikes pitch in for the cost of a roll of color film. Take a picture of each bike. Paste it on a large index card and include such information as owner's name, address, bike serial number, where purchased, owner's age, distinguishing marks.

CONCEPT V: HEALTH AND PERFORMANCE SKILLS ON THE BICYCLE

Subconcepts	Goals
A. A Fun Way to Keep in Shape	Students will become aware of the health benefits to be enjoyed from bicycling.
B. Performance Skills	Students will demonstrate mastery of basic maneuvers necessary for safe bicycle travel.

Subconcept A: A Fun Way to Keep in Shape

What's a better way to keep in shape than bicycling? Bicycling is a complete exercise; a biker develops strong legs and good muscle tone in the arms, back, and abdomen. Famous coaches like Knute Rockne of Notre Dame fame put their teams in the bike saddle as training--training that paid off in touchdowns. Not only does bicycling produce strong bodies, it also is good for your heart and lungs.

Bicycling can help you get in shape in another big way. Experts say that adding 30 minutes of moderate exercise a day can help you lose about 11.5 kg (25 pounds) in a year if you eat the same amount. Try bicycling each day and a sensible diet together and watch the grams melt away!

If you're not used to bicycling regularly, get in shape sensibly. Don't try for 25 kilometers the first day. Start to ride on a regular schedule and increase distance or speed each day. Use certain exercises to condition yourself before you begin cycling or in the winter when you can't ride. Good starter exercises are leg lifts, push-ups, and imaginary cycling (lying on your back and pedaling in the air.)

Subconcept A: A Fun Way to Keep in Shape (cont)

Objectives	Activities
Students will be aware of the health benefits of cycling.	1. When discussing the content with the students, ask a student to demonstrate driving a bike in class. Ask "What muscles do you use in cycling? what other sports or activities do you need these muscles for?" 2. Develop an experiment in your class. Students who want to lose weight can volunteer to participate. The experiment should last at least 3 months. (This activity could tie in with classwork about nutrition.) Have the students record everything they eat for a week to establish eating patterns. One group of students should act as "controls"--simply recording what they eat normally for the experimental period. One group of students could go on a doctor-approved diet for the time period without exercise. Another group could eat normally (but not increase consumption) and bicycle for 30 minutes a day. Another group could go on the same doctor-approved diet and add 30 minutes of bicycling per day. Have the students keep an honest diary of what they eat each day. Weigh the participants at

Objectives	Activities
	the same time each week. Which group loses weight more quickly? Which group keeps the weight down the longest?

Subconcept B: Performance Skills

1. Techniques
   a. The curved handlebars which force the rider to lean forward are better because the rider has better control and a better field of vision. This position also reduces wind resistance so that greater speeds can be achieved with less effort.
   b. Pedal using the balls of feet; put weight of body on the pedals at top of downstroke and push. (This increases driving power of muscles.)
   c. Learn to pedal evenly and rhythmically.
2. Skills
   a. Many of the skills are crucial for survival in the traffic environment. Many a bike accident has taken place on a straight, dry road. One wobble can be fatal.
   b. Especially crucial is the ability to drive in a straight line about 5 centimeters wide (the width of a pavement marking line.) The students can practice on a deserted street - riding on the center line without wobbles.
   c. See the Skills Rodeo for other basic skills in controlling and maneuvering the bicycle.

Objective	Activities
Students will demonstrate mastery of basic maneuvers necessary to safe bicycle travel.	1. Procedures for performance-skill tests. The course may be laid out on a playground. (Layout is attached.) Markings on grass may be made with dry white lime. Markers for locations on the course (i.e., obstacle test) may be small rubber cones, plastic milk jugs, etc. Signs and signals may be built of standard size or borrowed from the State Highway Department. Every effort should be made to avoid lost time in waiting for the completion of each performance and skill test. The test area is designed for a continuous flow of riders from one test to the next. Sufficient testers should be at each test location to provide instructions (demonstrate skill with a picture diagram) and to give assistance.[2] 2. Administration of tests. Explain the reason for each test and its practical application to road situations to each student group (in school classes) prior to the test. Demonstrate each test with a picture diagram to make each more

Subconcept B: Performance Skills (cont)

Objective	Activities
	meaningful and to show the practical value--rather than a trick or stunt to be forgotten after testing. Mimeograph score cards using those in this unit (master for reproduction #18, p. 115 . Students are to carry their cards throughout the testing. At each test location, the students are instructed to give their cards to the tester. After the test, the cards are returned to the students. If the skill to be demonstrated is not performed successfully, a cross (X) is placed in the parentheses next to the appropriate performance or skill. Note: A maximum of six performance mistakes are allowed to pass the overall testing.[2]

BICYCLE DRIVER'S RECORD

________________ SCHOOL

Name ______________________________________ Grade ______ Age _____ Date ____________

Address____ Teacher _________________________

Skill Tests	Score
Test No. 1	
Test No. 2	
Test No. 3	
Test No. 4	
Test No. 5	

*Deduct 5 points for each error.
Mark an X for each error.

Test No. 1 – Start/Stop – Left Turn

( ) 1. Did not drive tire on white line.

( ) 2. Wheel did not roll outside white lines.

( ) 3. Stopped behind first stop sign.

( ) 4. Stopped behind stop line and stop sign.

( ) 5. Stopped behind crosswalk and stop sign.

( ) 6. Gave correct hand signal – STOP (3).

( ) 7. Kept to right and drove in a straight line.

( ) 8. Checked traffic from behind prior to left turn.

( ) 9. Gave correct hand signal – LEFT TURN.

( ) 10. Made left turn from correct lane.

( ) 11. Kept to right of the mid-point at intersection.

( ) 12. Placed both hands on the handle bar to turn.

( ) 13. Gave correct hand signal – STOP.

Remarks: ____________________________________

____

Test No. 2 – Obstacle Course – Right Turn

( ) 1. Did not touch cone markers when turning.

( ) 2. Did not drive tire on white lines.

( ) 3. Wheel did not roll outside boundary line.

( ) 4. Foot did not touch ground while riding.

( ) 5. Gave correct hand signal – RIGHT TURN.

( ) 6. Turned into correct lane.

( ) 7. Gave correct hand signal – STOP.

Test No. 3 – Figure-Eight – Steering

( ) 1. Did not drive tire on white lines.

( ) 2. Wheel did not roll outside white lines.

( ) 3. Foot did not touch ground while riding.

( ) 4. Gave correct hand signal – RIGHT TURN.

Test No. 4 – Braking Stop (Emergency)

( ) 1. Did not stop pedaling before reaching board.

( ) 2. Did not swerve to complete stop safely.

( ) 3. Wheels were not forced to skid.

( ) 4. Foot did not touch ground while trying to stop.

Test No. 5 – Intersection Observation (Yield Sign Posted)

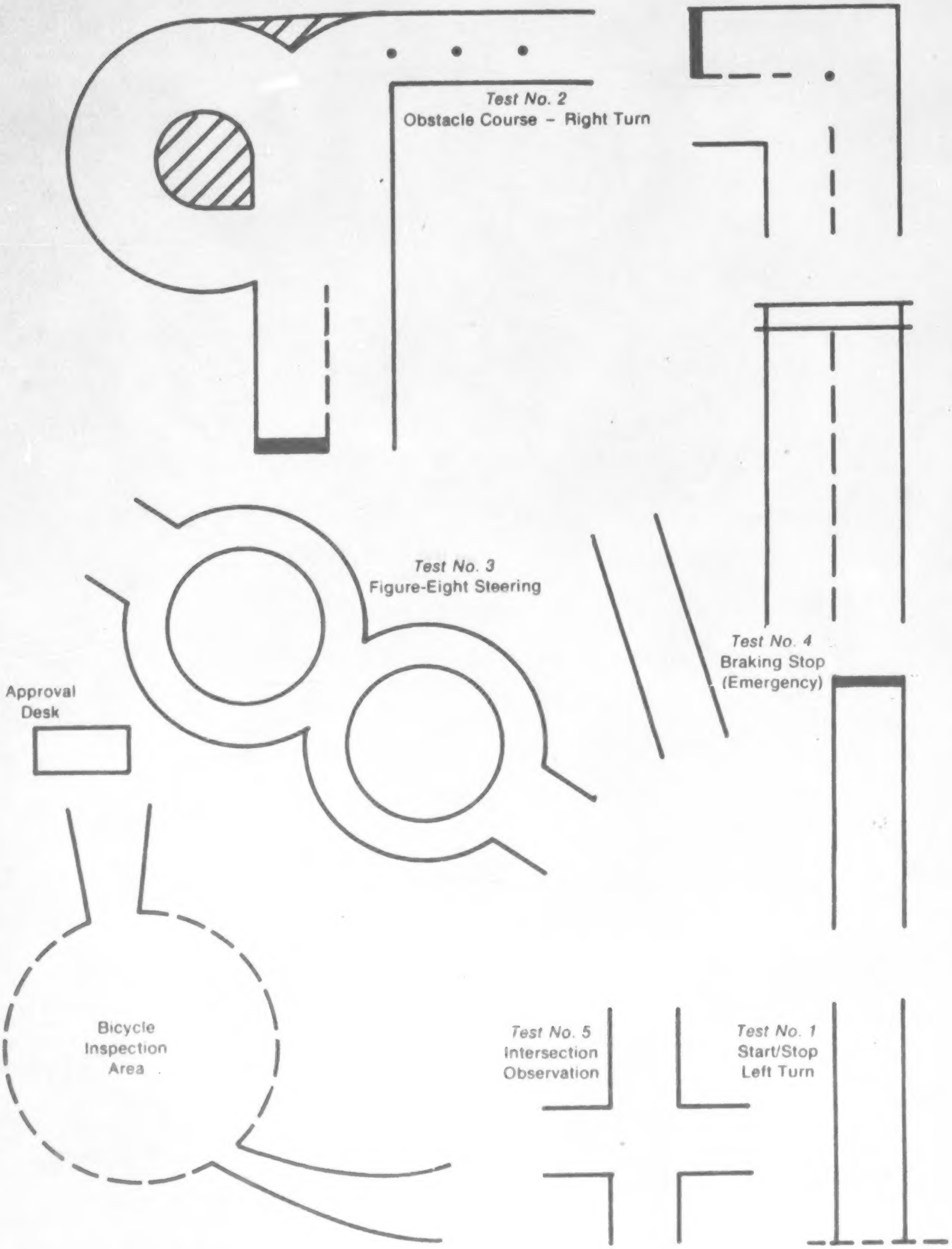
( ) 1. Drove in correct lane.

( ) 2. Observed traffic (left-right-left) conditions.

( ) 3. Slowed down to anticipate intersection.

( ) 4. Kept to right and drove in a straight line.

BICYCLE SAFETY PERFORMANCE AND SKILL TESTS

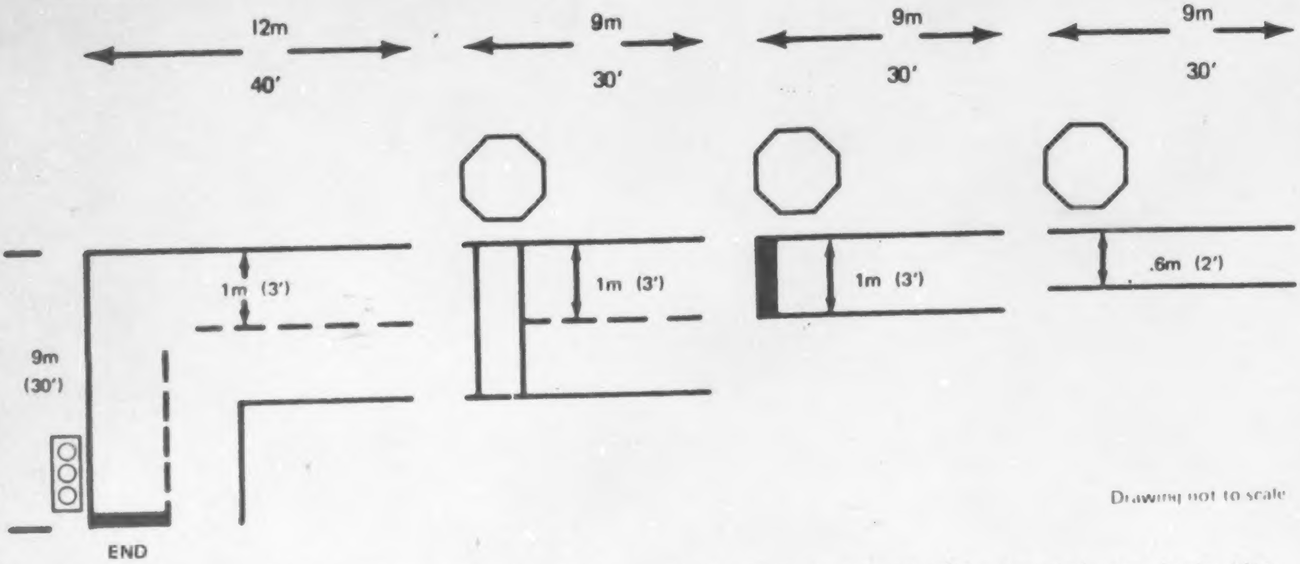

Test No. 2
Obstacle Course – Right Turn
Test No. 3
Figure-Eight Steering
Approval Desk
Test No. 4
Braking Stop (Emergency)
Bicycle Inspection Area
Test No. 5
Intersection Observation
Test No. 1
Start/Stop
Left Turn

TEST NO. 1

START/STOP – left turn

PURPOSE: To test the rider's ability at riding a straight course between parallel lines, without touching either line while coming to complete stops three times.

DIAGRAM:



PROCEDURE: The rider starts from a standstill with the front wheel at one end of the lane and very slowly rides through the lane and stops at three locations. The first stop is behind the stop sign. The second stop demands the rider to stop behind the stop line. The third stop necessitates the rider to stop behind the pedestrian crosswalk.

The second part of the test is to have the rider demonstrate the performance standards for a left turn with proper hand signal.

STANDARDS FOR SUCCESS:

( ) 1. Did not drive tire on white line.

( ) 2. Wheel did not roll outside white lines.

( ) 3. Stopped behind first stop sign.

( ) 4. Stopped behind stop line and stop sign.

( ) 5. Stopped behind crosswalk and stop sign.

( ) 6. Gave correct hand signal – STOP (3).

( ) 7. Kept to right and drove in a straight line.

( ) 8. Checked traffic from behind prior to left turn.

( ) 9. Gave correct hand signal – LEFT TURN.

( )10. Made left turn from correct lane.

( )11. Kept to right of the mid-point at intersection.

( )12. Placed both hands on the handle bar to turn.

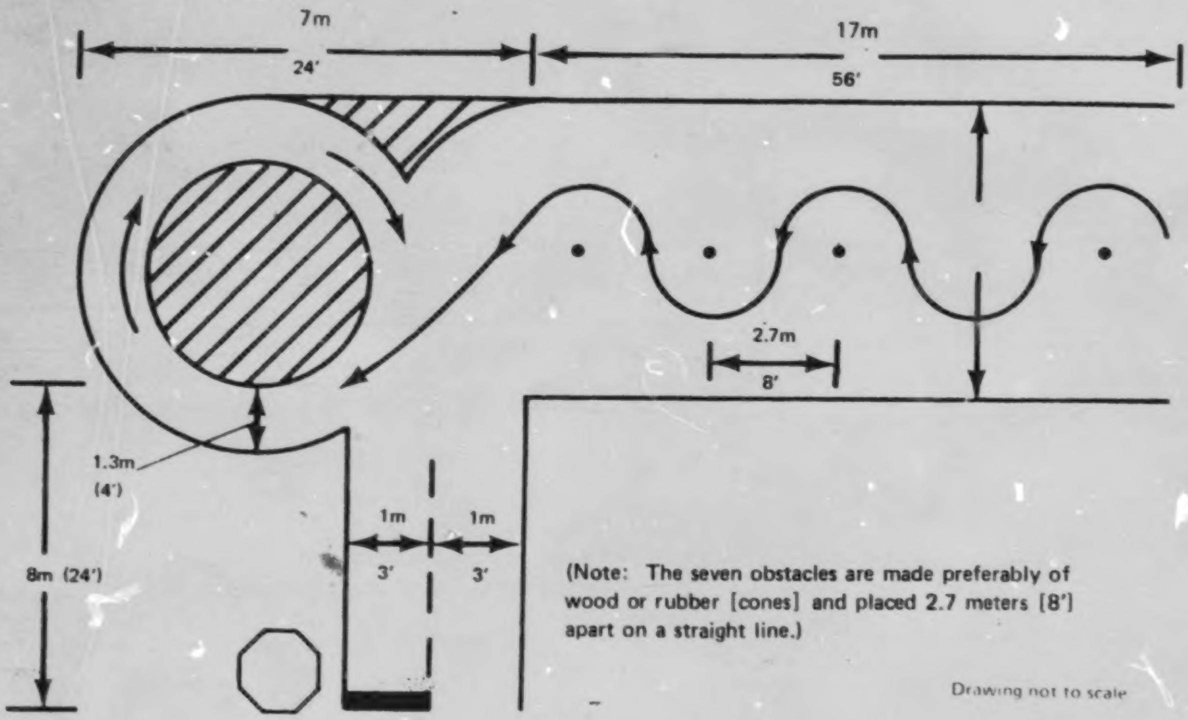
( )13. Gave correct hand signal – STOP.

TEST NO. 2

OBSTACLE COURSE – RIGHT TURN

PURPOSE To determine the ability of the rider to demonstrate the "feel" of the bicycle in close quarters, to reveal judgment and accuracy in riding past obstacles.

DIAGRAM



(Note: The seven obstacles are made preferably of wood or rubber [cones] and placed 2.7 meters [8'] apart on a straight line.)

Drawing not to scale

PROCEDURE The rider starts from a position back of the first obstacle so that balance is secured before the first obstacle is reached. He passes to the right of the first obstacle and weaves in and out among the rest. When the last obstacle has been passed, the rider successfully demonstrates a right turn with hand signal. With completion of the right turn, the rider comes to a complete stop behind stop line and stop sign.

STANDARDS FOR SUCCESS

( ) 1. Did not touch cone markers when turning.

( ) 2. Did not drive tire on white lines.

( ) 3. Wheel did not roll outside boundary lines.

( ) 4. Foot did not touch ground while riding.

( ) 5. Gave correct hand signal - RIGHT TURN.

( ) 6. Turned into correct lane.

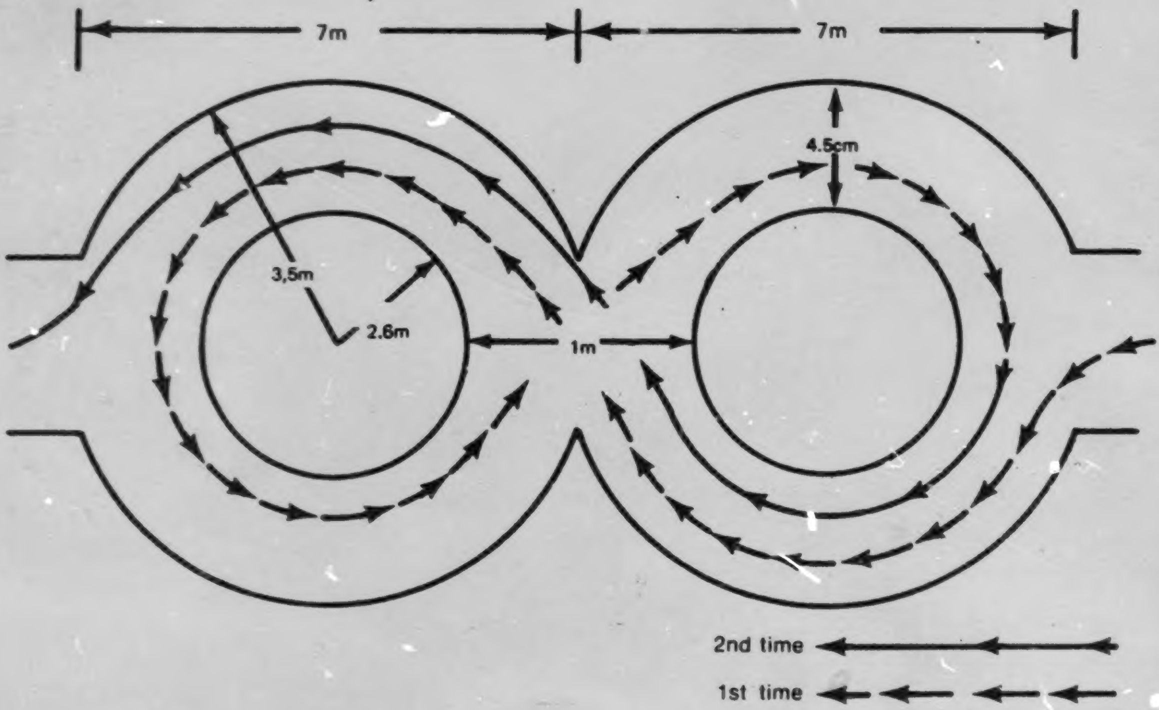
( ) 7. Gave correct hand signal - STOP.

TEST NO. 3--METRIC

FIGURE-EIGHT - STEERING

PURPOSE: To determine the rider's ability in steering and balancing.

DIAGRAM:



(Note: The radius of the inside circle is 2.6 meters, and the outside circle 3.5 meters, making a lane of 110 centimeters.)

PROCEDURE: The rider takes a moving start with both hands on the handle bars and steers through the figure eight.

STANDARDS FOR SUCCESS:

( ) 1. Did not drive on white lines.

( ) 2. Wheel did not roll outside white lines.

( ) 3. Foot did not touch ground while riding.

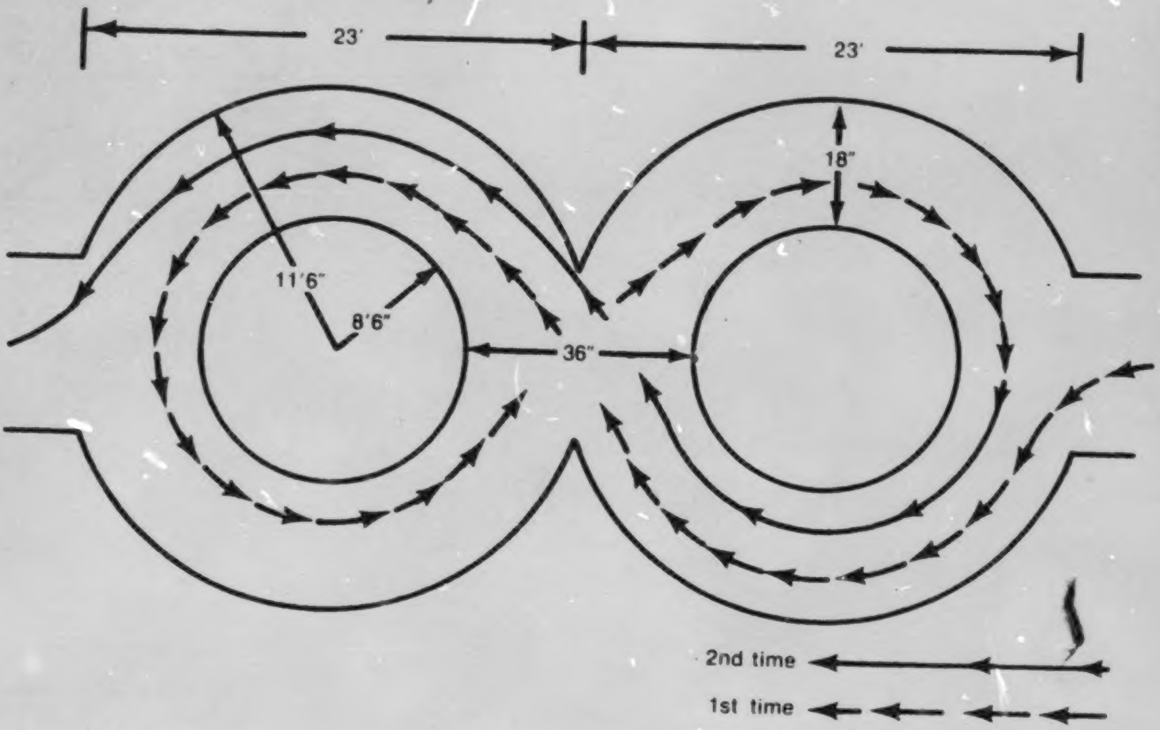
( ) 4. Gave correct hand signal - RIGHT TURN.

TEST NO. 3--ENGLISH

FIGURE-EIGHT - STEERING

PURPOSE: To determine the rider's ability in steering and balancing.

DIAGRAM:



(Note: The radius of the inside circle is eight feet, six inches, and the outside circle eleven feet, six inches, making a lane of eighteen inches wide.)

PROCEDURE: The rider takes a moving start with both hands on the handle bars and steers through the figure eight.

STANDARDS FOR SUCCESS:

( ) 1. Did not drive on white lines.

( ) 2. Wheel did not roll outside white lines.

( ) 3. Foot did not touch ground while riding.

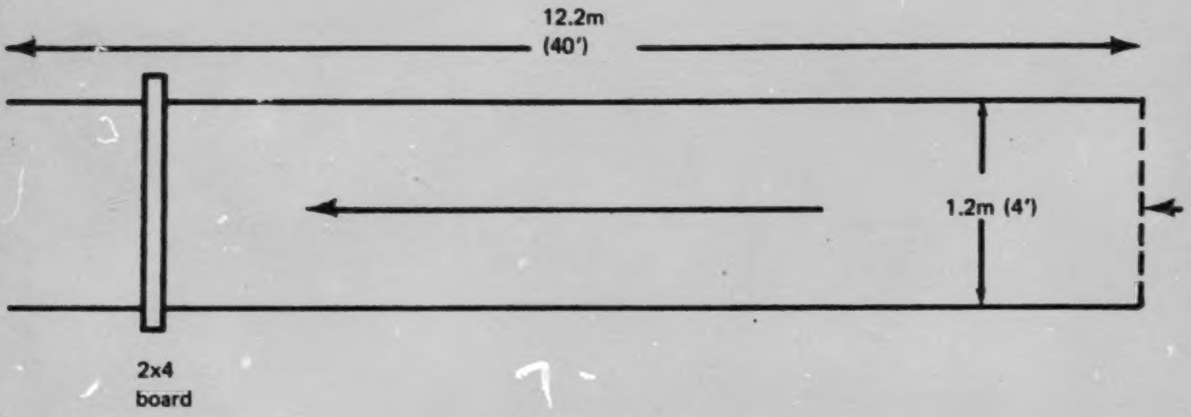
( ) 4. Gave correct hand signal - RIGHT TURN.

TEST NO. 4

BRAKING STOP (EMERGENCY)

PURPOSE: To test the rider's balance and capability for stopping in an emergency.

DIAGRAM:



PROCEDURE: The rider takes a moving start and brings his speed to normal. He rides directly toward a board (lying on ground) and stops with the front tire just in front of the obstacle. The wheels must not be skidded.

STANDARDS FOR SUCCESS:

( ) 1. Stopped pedaling before reaching board.

( ) 2. Did not swerve to complete stop safely.

( ) 3. Wheels were not forced to skid.

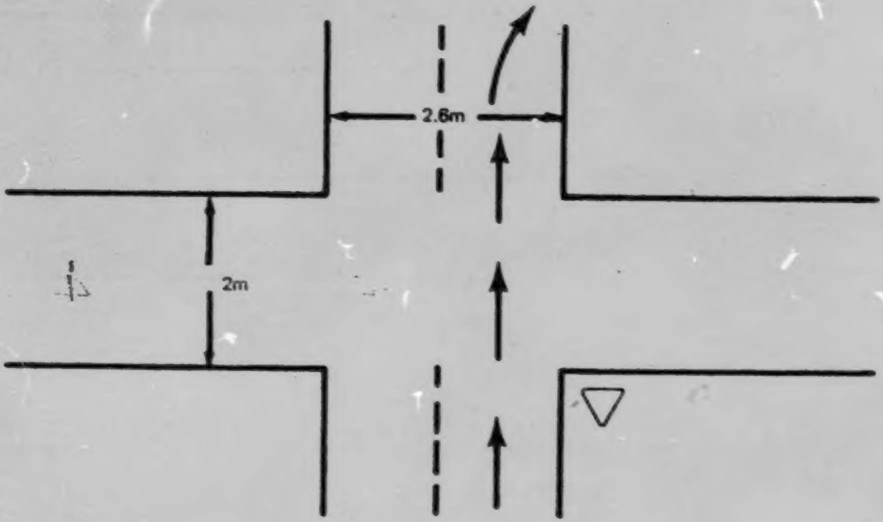
( ) 4. Foot did not touch ground while trying to stop.

TEST NO. 5--METRIC

INTERSECTION OBSERVATION (YIELD SIGN POSTED)

PURPOSE: The rider demonstrates ability to safely approach an intersection (controlled), observe traffic situations and ride safely through.

DIAGRAM:



PROCEDURE: The rider takes a moving start and rides in the correct lane approaching the intersection. He is to observe traffic conditions (left-right-left) prior to safely passing through the intersection.

STANDARDS FOR SUCCESS:

( ) 1. Drove in correct lane.

( ) 2. Observed traffic (left-right-left) conditions.

( ) 3. Slowed down to anticipate intersection.

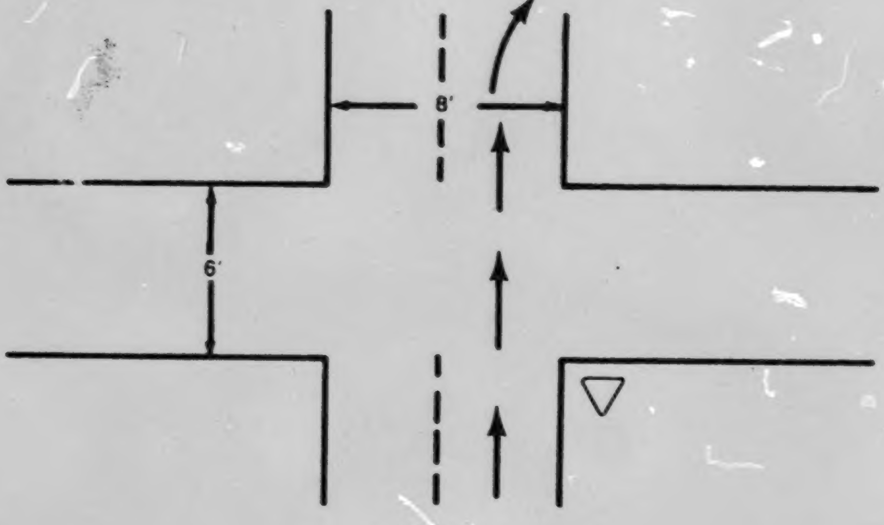
( ) 4. Kept to right and drove in a straight line.

TEST NO. 5--ENGLISH

INTERSECTION OBSERVATION (YIELD SIGN POSTED)

PURPOSE: The rider demonstrates ability to safely approach an intersection (controlled), observe traffic situations and ride safely through.

DIAGRAM:



PROCEDURE: The rider takes a moving start and rides in the correct lane approaching the intersection. He is to observe traffic conditions (left-right-left) prior to safely passing through the intersection.

STANDARDS FOR SUCCESS:

( ) 1. Drove in correct lane.

( ) 2. Observed traffic (left-right-left) conditions.

( ) 3. Slowed down to anticipate intersection.

( ) 4. Kept to right and drove in a straight line.

BUZZ SHEETS

Use these activity and interest sheets to supplement your class work.

BICYCLE CLUBS IN THE SCHOOL

The primary goal in organizing a bicycle club in the schools is safety. There is no better way to get safety points across than by eliciting them from the students themselves. A bicycle club can be the tool through which students can learn to do by doing.

Organization--It is best not to go into extreme detail when choosing the people to organize and run a bike club. As director, the teacher should have final authority on everything. A committee or board of directors made up of students usually works better than a set of officers when you first start your club. Natural leaders will soon make themselves known.

Naming the club--This may not be very important to you, but the students feel that the first objective is finding a suitable name. Have a name contest, and let the whole club vote on the final name.

Organization bylaws--This is very important. The Bicycle Manufacturers Association of America can help you here (1101 15th Street NW., Suite 304, Washington, D.C. 20005). Ask for the free booklet on bicycle clubs. Other organizational considerations include:

1. Aims
2. Membership requirements, if any
3. Dues--you may not want any; school rules may conflict
4. Officers--covered above
5. Elections
6. Meetings--how often
7. Order of business--a must, if you are limited on time
8. Committees--great way to teach individual/group responsibilites

Insurance--Be sure your school insurance will cover any bicycling activity. Be aware of its liabilities.

If students are involved in club activity, it is wise to be sure the parents are aware. This can be accomplished by requiring a club application card including name, address, date of birth, type of bike (speed), size, color, serial no. (very important), whether the bike is registered with the police, parent signature, and statement.

Club Meeting Ideas--For your second meeting, bring in a bicycle mechanic or expert (stay away from salesman, department store tips). The speaker will fill a whole meeting and students will love it. Plan a rodeo on playground. Don't meet unless you have something to decide or an activitiy to pursue: meeting without anything to do will lessen interest in the club. Set up a schedule which omits meetings when weather is a problem. Extra meetings can be planned.

HISTORY OF THE BICYCLE

The granddaddy of the modern bike was the hobby horse or "Draisine," invented in 1816 by a German forester Baron von Drais, to aid him in daily inspection tours. It had a fixed rear wheel, a pivoting front wheel, and no driving mechanism. The rider pushed along with his feet! As the "pedestrian curricle," it became popular in England and America despite one disadvantage--the passenger could coast downhill but to get back up again had to hoist the machine (weighing some 50 pounds) onto his shoulders. In 1840, a Scotsman named Kirkpatrick MacMillan outfitted the hobby horse with foot pedals and was promptly arrested for causing a commotion in the streets.

A less violent reaction greeted the velocipede--the sensation of the 1865 Paris Exposition. Picture two wooden wheels with iron tires, the seat on a steel spring midway between the wheels, the whole thing propelled by cranks attached to the front wheel axle, and you may understand why the velocipede became known as the boneshaker. It was the direct ancestor of the modern bike.

Efforts to increase speed resulted in a strange looking bike with a front wheel of over meters (5 feet) in diameter, and a rear wheel of centimeters (12 inches) or less. It had speed but little stability: if the driver struck a stone or bump on the road, he was thrown forward.

Colonel Albert A. Pope of Boston saw a bicycle in the Centennial Exposition of 1876, and the following year commissioned W. S. Atwell of Boston to build a 70-pound model costing $313. Deciding that there was a real future in bikes, he had the Weed Sewing Machine Company of Hartford, Connecticut, make some for him in the corner of their shop. Thus, the American bicycle was born.

By 1900, 7,573 U.S. patents had been granted for cycles and their parts; in 1892, applications for bicycle patents were so numerous that a special department of the U.S. Patent Office was created.

The bicycle has rightly been called the father of the motor car and the grandfather of the airplane. It was the men of the bicycle industry, with the training and facility which the industry brought them, who helped design and build the first automobiles.

Research the history of the bicycle for answers to these questions:

1. Where have descriptions of the ancestors of today's bicycle been found?
2. When was the first bicycle developed?
3. Name one individual who has been the most influential in designing and developing the bicycle.
4. Define "hobby horse" and "velocipede boneshaker."
5. Illustrate three examples of bicycles from the past.
6. Why were bicycles especially popular during the early 1900's?
7. Is the reason for today's popularity for bicycles the same as it was in the early 1900's?
8. What is the highest recorded speed a bicycle can travel per hour?
9. How important is the bicycle to you personally?
10. Approximately how many bicycle drivers are there in the United States today? ________________ In the world? ________________.
11. Write a brief paragraph on any information concerning the history of the bicycle that you feel will add interest to your research report.
12. Build a bulletin board illustrating the history of the bicycle.

Other research topics: the use of the bicycle in other countries and the sport of bicycle racing.

SCHOOL BUS SAFETY

TEACHER INFORMATION

I. Walking to the Bus Stop
  A. Same procedures and skills that students use in other types of pedestrian behavior.
  B. Allow enough time to reach the bus stop without hurrying; hurrying can cause you to disregard safe habits.
  C. Being late may cause inconvenience to others on the bus by making them late for school.

II. At the Bus Stop
  A. Be at the bus stop about 5 minutes before the bus is scheduled to arrive; avoid being too early.
  B. Stay at least an arm's length away from the curb.
  C. Don't wait or play in the street. Look after younger children who might horse around and push each other into the street.
  D. When you see the bus, line up in single file with the younger children first. Do not move toward the bus until it has come to a full stop.

III. Entering the School Bus
  A. Wait for the doors to open.

  B. Keep one hand free to use the handrail.
  C. Allow enough space between each other in case someone stops suddenly, drops something, or misses a step.
  D. Take a seat promptly.

IV. Behavior on the Bus
  A. Safe passenger behavior is necessary to avoid distracting or otherwise interfering with the driver's task and to make the trip pleasant for others.
  B. Some behavior guidelines are:
    1. Remain seated while the bus is moving.
    2. If you must stand, hold on to the seat handle.
    3. Keep heads, arms, and legs inside the bus. Don't open a window without the driver's permission.
    4. Talk quietly. Don't create disturbances that will distract the driver.
    5. Don't obstruct aisles.
    6. Be especially quiet as bus nears railroad crossings.
    7. Don't smoke, drink, or eat on the bus.

TEACHER INFORMATION (cont)

V. Unloading
A. Those in the front seats get off first unless told otherwise by the driver.
B. Use the handrail as you step down from the bus.
C. Move quickly away from the bus.
D. If, after leaving the bus, you have to cross the street or highway:
1. Tell the driver.
2. Cross 3 meters in front of the bus to insure that the driver sees you.
3. Check to make sure traffic has stopped, then walk quickly across.

VI. Emergency Exiting
A. Follow driver's instructions quietly and quickly; help calm the younger children.
B. Know where the emergency exits are. Use front and rear doors, if possible; windows that are pushed out, if necessary.

Note: School bus transportation is a service extended by (not an obligation of) the State. Passengers can be barred from riding the bus by the school principal if their behavior is disruptive; this concept has been tested and upheld by North Carolina courts.

CONCEPT: SCHOOL BUS SAFETY (cont)

Objectives	Activities
1. Students will demonstrate knowledge of the proper procedures when going to, entering, exiting, and riding on the school bus.	1. Through class discussion establish safe procedures for getting to school on the bus. Students should indicate their bus arrival times and state a time they must leave home to arrive at the bus stop on time. Students should also list hazardous spots along the routes to the bus stop. Ask the students why they think there are behavior problems on the bus. What do they think can be done? 2. Have the students develop a checklist to evaluate the behavior of others and themselves while going to school on the bus. The list should include: a. bus stop behavior, b. loading and unloading, c. passenger behavior. 3. Use your students to teach younger students about bus safety. Have the class "adopt" a kindergarten or other class and prepare lessons on teaching ways to behave. Students might help the children put together a parents' day (or

CONCEPT: SCHOOL BUS SAFETY (cont)

Objectives	Activities
	night) program. If possible, develop a buddy system for your students and the elementary children at their bus stops. A buddy could be responsible for the child waiting, loading, and unloading safely, as well as crossing the road if necessary and in emergency situations.
2. Students will demonstrate reasonable passenger behavior while riding on the bus.	4. Use master for reproduction "Bus Buzz", p. 136, to spark discussion about behavior as a bus passenger. The purpose of this exercise is to clarify how the students feel about riding on the school bus. The students' personal needs while riding on the bus may be explored and alternative ways to satisfy those needs. 5. Invite a member of the bus maintenance crew to speak to the class about buses damaged by passengers. 6. Invite a bus driver to talk about school bus safety. How does the driver feel about the responsibility involved? How can bus riders help? 7. Have students draw cartoons of foolish and unsafe actions by bus passengers.

CONCEPT: SCHOOL BUS SAFETY (cont)

Objectives	Activities
	8. Films: *And Then It Happened* is highly recommended. See the resource list for this and other films.
	9. Additional activities: Designing posters, bulletin boards, cartoons, slogans, poems, etc., for the class and the rest of the school.
3. Students will demonstrate the proper procedures to be used in emergency situations on the school bus.	10. Invite a bus driver to speak about school bus emergencies and procedures.
	11. Demonstrate emergency procedures on a school bus (or use an activity bus which might be more readily available for longer periods of time during school hours).
4. Students will list the Motor Vehicle Laws relating to safe school bus operation.	12. Distribute copies of the N.C. Motor Vehicle Laws, p. 137, that apply to school buses. The students could survey car drivers to see how many drivers are aware of them. They might also want to prepare a display for drivers to exhibit at a local shopping mall or other type of community gathering place. (Be sure to call the local press if they do.)

BUS BUZZ

1. There should be no smoking allowed on the bus if--
   - a. no one on the bus minds.
   - b. the smoke bothers one person.
   - c. the smoke bothers half the passengers.
   - d. they tell us not to smoke.

2. It would be easier to enjoy the bus ride if--

   ____.

3. People would stay in their seats on the bus if--

   ____.

4. Riding on the bus makes me--
   - a. glad
   - b. mad
   - c. sad
   - d. bad

5. The thing that bothers me most about riding on the bus is __________

   ____.

6. Describe (-ing words) how you feel about each of the following, on the bus:

younger children ____________________ing
driver ____________________ing
boys ____________________ing
girls ____________________ing
seats ____________________ing
view ____________________ing
ride ____________________ing
noise ____________________ing
smoke ____________________ing
food ____________________ing
time ____________________ing
safety ____________________ing

N.C. SCHOOL BUS TRAFFIC LAWS

Sec 20-217	Drivers of motor vehicles shall come to a stop approaching a school bus engaged in receiving or discharging passengers if the mechanical stop signal is extended from the school bus. The exception being if the driver is approaching from the opposite direction and the highway or street is divided by a traffic island.
Sec 20-217.1	It shall be unlawful to discharge or receive passengers at locations which would require the crossing of a divided highway to reach their destination or to board the bus.
Sec 20-218	It shall be unlawful for any person to operate or drive a school bus loaded with children over the public roads at a greater rate of speed than kilometers per hour (35 mph). Activity buses which are painted a different color from regular school buses and which are being used for transportation of students or others to or from places of participation in events other than regular classroom work, it shall be unlawful to operate such a school activity bus at a greater rate of speed than kilometers per hour (45 mph).
Sec 20-143.1	The driver of every school bus, before crossing at grade any track or tracks of a railroad, shall stop such vehicle within meters ([illegible] feet) but not less than meters (10 feet) from the nearest rail and while stopped shall listen and look in both directions along the track for any approaching train, and for any signals indicating the approach of a train.
Sec 20-16	The driver is charged with 5 points for illegally passing a stopped school bus.

FARM VEHICLES

UNIT OUTLINE: FARM VEHICLE SAFETY

Concepts	Goals
I. Starting and stopping a farm vehicle.	Students will know the proper procedures for starting and stopping a farm vehicle. Students will be aware of the hazards involved in starting and stopping a tractor.
II. Special hazards of farm vehicle operation.	Students will understand the hazards involved in vehicle operation and how to avoid those hazards.
III. Driving a farm vehicle on the highway.	Students will understand the rules they should follow when driving farm vehicles on the highway.

CONCEPT I: STARTING AND STOPPING A FARM VEHICLE

Each year approximately 1,000 persons die in tractor accidents, and approximately one-third of the victims are less than 20 years old.

Children begin to drive tractors at very young ages. All students, whether or not they live or work on a farm, will drive cars, bicycles, or motorcycles and will encounter tractors on the highways.

Before starting a tractor, the driver should check the water, oil, and gas. If the tractor is to be started inside, ventilation should be good to prevent carbon monoxide from accumulating. Before starting the engine, fill the radiator. Removing the radiator cap while the engine is hot could result in a severe burn as hot water and steam escape from the radiator under pressure.

When refueling, always turn the engine off. If a fuel tank is used on the farm, it should be at least meters (40 feet) from any building. Don't smoke near the tank or while refueling.

Before mounting the tractor, check to see that all grease, mud, or ice is removed from the platform. As you mount the tractor, use the handgrip and a step if one is provided. A tractor is designed to carry only one person so don't carry passengers.

Before dismounting:

1. Stop the engine,
2. Disengage the take off,
3. Set the brakes,
4. Put the gear shift in neutral or park.

Many times the clothing of tractor operators has cost an arm or a leg, in some cases his life. Tractor operators should wear designed-for-comfort clothes that are neat and fit snugly; definitely no loose, frayed clothing that might get tangled in the machinery of the tractor. Wear shoes that are sturdy and provide sure footing.

Note: If you want more detailed information, the 4-H has an excellent series on farm vehicle safety and operation entitled Petroleum Power-Tractor (available from the North Carolina Agricultural Extension Service). Call your local agent for this material. Ask him to speak to your class as well.

CONCEPT I: STARTING AND STOPPING A FARM VEHICLE (cont)

Objectives	Activities
1. Students will list items to be checked before starting tractor. 2. Students will describe proper procedure for mounting tractor. 3. Students will describe proper procedures for dismounting a tractor. 4. Students will state two reasons for wearing proper clothing.	1. Through discussion, have class select items to be checked. 2. Have a knowledgeable person demonstrate where items on prestart checklist can be found. 3. Have a qualified person point out handrail, steps, etc., for proper mounting. 4. Have students list types of injuries likely to be caused by improper mounting. 5. Through class discussions, decide on proper steps to take before dismounting. 6. Have a qualified person show proper mounting and dismounting procedures. 7. Have students make posters showing proper way to dismount. 8. Have a class demonstration using students' clothing as examples.

CONCEPT II: SPECIAL HAZARDS OF FARM VEHICLE OPERATION

During class discussion of major hazards that affect the tractor, these points may be brought up:

1. Poor visibility,
2. Adverse ground conditions,
3. Excessive speed,
4. Unstable loads,
5. Collisions with other motor vehicles.

Excessive speed and unstable loads are the two most serious causes of accidents because both can lead to overturns; the chance of upset increases four times when the speed is doubled. The tractor has a high center of gravity which makes it very unstable. Add to that an unbalanced or too heavy load and the danger of an overturn greatly increases.

Hills and steep grades cause the tractor to roll over. Some precautions are:

1. Engage clutch slowly when starting up a hill,
2. If no load is being pulled, back the tractor up the incline.
3. Keep tractor in gear when going downhill,
4. Widen the rear and front wheels, if possible.

When a tractor becomes stuck, care must be taken not to overturn it while trying to free it. Too much power to the rear wheels can cause the front to rise and to fall over backwards. Some ways of freeing a tractor are:

1. Try backing out--engage clutch slowly,
2. Dig out area in front of rear wheels--use moderate speed and engage clutch slowly,
3. Get another tractor to pull it out.

Sometimes a bucket is attached to the front of a tractor and is used as a leader. Carrying loads only adds to the instability of a tractor. Precautions to be taken by the driver are:

1. Reduce speed,
2. Match bucket load to tractor weight and stability,
3. Handle rig smoothly,
4. Keep the loaded bucket as low as possible,
5. Add weight to rear wheel if needed,
6. Load bucket evenly,

7. Be familar with work area (e.g., obstacles, clearances).

When pulling a load, take extra precautions:

1. Adjust brake for highway driving.
2. Add front weight for rear loads.
3. Add rear weight for traction.

Tractors have one brake pedal for each rear wheel so the operator can slow down one of the rear wheels in order to make tight turns in the field. The two brake pedals may be adjusted to operate together on the highway. If this is not done, when one brake is applied at high speed, the tractor is likely to tip over.

CONCEPT II: SPECIAL HAZARDS OF FARM VEHICLE OPERATION (cont)

Objective	Activities
1. Students will describe proper procedure for operating tractors on hills.	1. Field demonstration by qualified person. 2. Class project to build display of farm with toy tractors and to use toys to demonstrate tractor instability.
2. Students will describe or demonstrate how to recover a stuck tractor.	3. Field demonstration by qualified person. 4. Posters to illustrate the recommended steps for recovering tractors. 5. Class display constructed to demonstrate how to recover a stuck tractor.
3. Students will list precautions to be taken when using a tractor as a loader.	6. Class discussion of hazards created by using tractor as a loader.
4. Students will list four hazards faced by a moving tractor.	7. Agriculture teacher or tractor salesman to speak to class on hazards and ways to minimize them. 8. Class discussion to relate personal experiences. 9. County agriculture agent to obtain information on local tractor accidents. 10. Have students collect newspaper clippings to add to accident facts. 11. Class project to develop charts indicating types of accidents (age of driver, time, on-road, off-road, terrain, etc.).

CONCEPT III: DRIVING A FARM VEHICLE ON THE HIGHWAY

When the tractor is to be driven on the highway, these steps should be followed:

1. Equip with slow moving vehicle sign.
2. If tractor is equipped with flashing light - use it.
3. Obey all traffic laws.
4. Signal intentions to turn, slow down, or stop.
5. Stop and make sure there is no oncoming traffic before you enter or cross a public road.
6. Turn corners slowly.
7. Keep to right, if necessary pull onto shoulders to let traffic pass.
8. Be sure your tractor and equipment occupy no more than one lane.
9. Shift to lower gear when going uphill or downhill with a load.
10. Have rearview mirror on tractor.
11. Watch road carefully.
12. Keep your speed down when roads are slippery due to rain, ice, or snow.

CONCEPT III: DRIVING A FARM VEHICLE ON THE HIGHWAY (cont)

Objective	Activities
Students will list Rules of the Road for tractors and safety procedures to help insure safety of tractor operator and drivers of other vehicles.	1. Class discussion of own experience either as an operator or a passenger of a car. 2. Filmstrip: Play It Safe, by Ford Motor Company, Tractor Operation. This filmstrip covers highway operation of the tractor as well as the other objectives. Could be used at beginning as preview or at the end for review. 3. Topics for theme or oral report: a. How could a tractor driver cause accidents on the highway? b. How do laws differ for cars as compared to farm equipment? c. How is driving a tractor different from any other type of vehicle?

RESOURCE LIST

ORGANIZATIONS

Aetna Casualty and Surety Company, Driver Education Services, 151 Farmington Avenue, Hartford, Connecticut 06115.

Allstate Insurance Company, 7770 Frontage Road, Skokie, Illinois 60076.

American Automobile Association, 1712 G Street NW., Washington, D.C. 20006.

American Automobile Association-North Carolina, Carolina Motor Club, Inc., 701-3 South Tryon St., P.O. Box 60, Charlotte, North Carolina 28202.

Bicycle Manufacturer's Association of America, 1101 15th Street NW., Suite 304, Washington, D.C. 20005.

National Bicycle Dealers Association, 29025 Euclid Avenue, Wickliffe, Ohio 44092.

National Education Association, American Association for Health, Physical Education and Recreation, 1201 16th Street NW., Washington, D.C. 20036.

National 4-H Service Committee, Inc., Program Services, 150 North Wacker Drive, Chicago, Illinois 60606.

National Safety Council, 425 North Michigan Avenue, Chicago, Illinois 60611.

North Carolina Department of Motor Vehicles, Traffic Safety Education Division, 1100 New Bern Avenue, Raleigh, North Carolina 27611.

North Carolina Department of Public Instruction, Education Building, Raleigh, North Carolina 27611.

North Carolina Department of Transportation, Bicycle Coordinator, P.O. Box 25201, Raleigh, North Carolina 27611 (for bikeways information).

North Carolina State University, Agricultural Extension Service, Department of Agricultural Information, Box 5037, Raleigh, North Carolina 27607.

Schwinn Bicycle Company, 1856 Kastner Avenue, Chicago, Illinois 60635.

University of North Carolina at Chapel Hill, Highway Safety Research Center, Craige Trailer Park, Chapel Hill, North Carolina 27514.

The Wheelmen, 6239 Anauista, Flint, Michigan 48507.

RESOURCE LIST - SEVENTH GRADE PRE-DRIVER EDUCATION

PEDESTRIAN

FILMS

Be Safe. . .Be Seen. (1968, 16 mm, color, 15 min.) Photographed throughout Europe, this film illustrates the hazards of being a pedestrian and the importance of being seen at night through the use of reflective materials. Available from Countryman-Klang, Inc., 905 Park Avenue, Minneapolis, Minnesota 55404 (p).

Easy Steps. (1973, 16 mm, color, 11 min.) This is a bouncy, musical film which emphasizes the need for communication between pedestrians and drivers. Available from Film Loops, Inc., P.O. Box 2233, Princeton, New Jersey 08540.

The Everyday Gamble. (1973, 16 mm, color, 13 min.) Depicts hazards that pedestrians encounter in everyday traffic. Available through the Highway Safety Group, Pennsylvania Department of Transportation, Harrisburg, Pennsylvania 17122.

Pedestrian Signs and Signals. (1972, 16 mm, color, 11 min.) This open-ended film features three scenes, taken by hidden camera, to illustrate crosswalk behavior. The audience is asked to discuss the merits of each scene separately. The new international traffic signs are used to stimulate new awareness and understanding of these aids to maximize safety. Available from AIMS Instructional Media Services, Inc., P.O. Box 1010, Hollywood, California 90028.

Step Lightly. (1968, 16 mm, color, 15 min.) Expresses the importance of pedestrian and cyclist being reflectorized while on the road at night Available from Countryman-Klang, Inc., 905 Park Avenue, Minneapolis, Minnesota 55404 (p).

PAMPHLETS

Accident Facts. National Safety Council, 425 North Michigan Avenue, Chicago, Illinois 60611. Stock #021.99-33.

Pedestrian Safety. National Safety Council, 425 North Michigan Avenue, Chicago, Illinois 60611. Stock #429.04-10.

Pedestrian Safety Report. Carolina Motor Club, 701-3 South Tryon Street, Charlotte, North Carolina 28201.

Traffic Safety Guides. Carolina Motor Club, 701-3 South Tryon Street, Charlotte, North Carolina 28201.

OTHER

Traffic Safety Posters - safe walking and bicycle rules in calendar form. American Automobile Association, Inc., 734 15 Street, NW., Washington D.C. 20005; or Carolina Motor Club 701-3 South Tryon Street, P.O. Box 60, Charlotte, N.C. 28201.

BICYCLE

FILMS

Bicycle Safety. (16 mm, b & w, 11 min) Driver responsibilities explored include bicycle maintenance and obeying traffic rules. Available from McGraw-Hill Company, Text-Film Division, 330 West 42nd Street, New York, New York 10036 (p).

Bicycle Safety Program. (1971, 16 mm) Available from Film Loops, Inc., P.O. Box 2233, Princeton, New Jersey 08540.

Bicycle Today - Automobile Tomorrow. (1969, 16 mm, color, 10 min.) A boy is shown by a motorcycle police officer how he should check his bicycle for mechanical soundness. Also, children demonstrate the importance of knowing the correct bicycle rules and safety regulations before riding in traffic. Available from Sid Davis Productions, 1046 South Robertson Boulevard, Los Angeles, California 90035 (p).

Bicycling Safety Today. (1972, 16 mm, 20 min). Pleasantly illustrates how cyclists can achieve full enjoyment from their wheels. A good film for solving safety problems in the community. (B.M.A.A. film) Available from Association Films, 600 Madison Avenue, New York, New York 10022.

Bicycling With Complete Safety. (16 mm, 10 min.) Film on bicycling for adults and children. Available from Mogull's, 235 West 46th Street, New York, New York 10036 (p,r).

Just Like A Car. (1971, color) A good defense in traffic and obeying the rules of the road are emphasized. Available from Film Loops, Inc., P.O. Box 2233, Princeton, New Jersey 08540.

One Got Fat. (1963, 16 mm, color, 13-1/4 min.) Ten bicycle drivers are prevented from reaching their destinations by individuals mistakes. Available from Henk Newhouse, Inc., 1017 Longaker Road, Northbrook, Illinois 60062 (p,r).

Planning a Community Bike Safety Program. (16 mm, 27-1/2 min.) How-to's of implementing a local safety program; (B.M.A.A. film) available from Association Films, 600 Madison Avenue, New York, New York 10022.

Play It Safe. (16 mm, 26-1/2 min.) Organizing a safety program based on actual New York experiences; (B.M.A.A. film) available from Association Films, 600 Madison Avenue, New York, New York 10022. (Note: Write to Association Films for Bicycle Films Catalog which lists nearly every audio-visual material on the subject of cycling.)

Ride On. (1972, 16 mm, color, 15 min.) Mr. Banana explores the history of the bicycle in order to discover a better bike. Through a series of slap-stick bicycle mishaps, he learns to follow the bicycle rules of the road. Available from McGraw-Hill Text-Films, 1221 Avenue of the Americas, New York, New York 10020.

Spinning Spokes. (16 mm, 18 min.) A high school boy finds out from his own experience that safe bicycle riding pays. He enlists in a local safety campaign that brings good results for all. Available from Mogull's, 235 West 46th Street, New York, New York 10036.

Tripping on Two (Wheels). (1974, 16 mm, color, 25 min.) Available from Professional Arts, Inc., P.O. Box 8484, Universal City, California 91608 (p,r).

Wonderful World of Bikes. (16 mm, 27-1/2 min.) On cycling enjoyment; (B.M.A.A. film) available from Association Films, 600 Madison Avenue, New York, New York 10022.

Your Bicycle and You. (16 mm, color, 13 min.) Compares bicycles and automobiles, and discusses bicycle and car operation as well as rules of the road. Available from Modern Learning Aids, Division of Modern Talking Pictures, 3 East 54th Street, New York, New York 10022 (p).

FILMSTRIPS

BICYCLE MANUFACTURER'S ASSOCIATION FILMSTRIPS - B.M.A.A. filmstrips are: (3 filmstrip units with recorded narration). Unit I, Grades 1-6--covers bike history, fit, games, skills, positions, etc. Unit II, Grades 1-8--covers safe riding, maintenance, power and gear ratios, brakes, derailleur system. Unit III, Teenagers & Adults--covers kinds of bikes, pedaling, brake systems, gear ratios and derailleurs, conditioning, racing strategy, techniques, and equipment. All filmstrip units include a teacher's Guide and suggested quiz.

BOOKLETS, LEAFLETS, AND MAGAZINES

BICYCLE MANUFACTURER'S ASSOCIATION OF AMERICA, INC., 1101 15th Street NW., Suite 304, Washington, D.C. 20005.
(All B.M.A.A. literature is distributed without cost in modest quantities. The quantities made available depend upon the particular bicycle program you have planned. In placing your order, please indicate by name the specific material you desire. If the quantity you required is more than B.M.A.A. can furnish, a small fee will be quoted to cover the actual printing cost.)

List of bicycle literature and educational materials available from the B.M.A.A:

Bicycle Clubs And Information Directory. Handy compilation of hundreds of bicycle touring clubs plus a description of their activities. Covers all racing and bicycle polo clubs, and addresses of bicycle collections and museums featuring bicycle memorabilia. Useful listing of suppliers of touring information, maps, bicycle accessories, bicycle racks, bicycle book publishers and distributors, bicycle camping suppliers, and many, many other sources of help.

Bicycle Riding And Accidents Among Youth - A Summary Report. Available From Highway Safety Research Center, University of North Carolina, Chapel Hill, N.C. 27514.

Bicycle Riding Clubs. A 72-page booklet that provides valuable information on (1) how to organize a bike club; (2) how to plan cycle tours; (3) how to plan bicycle field days. It is a perfect, all-inclusive guide for organizing new bicycle clubs and successfully activating existing ones. Widely used by recreation directors and others interested in making bicycling a happier, safer, and more rewarding experience.

Bicycle Safety Set. This safety set, which is distributed to young riders, consists of three items: (1) Safety League Membership Card listing the 12 rules of safe bicycle riding, (2) Safety Pledge Decal for easy application to the frame of the bicycle; (3) Bicycle Care pamphlet providing helpful hints on proper care and maintenance of the vehicle. The sets are used as awards in connection with bicycle inspection and other programs and by schools for distribution at the conclusion of the showing of bicycle safety films.

Bike Fun Material. Several documents are available on bicycle fun games, races, etc. Add a few of these events to heighten interest and attract more attention to your safety programs. It is also an excellent way to teach safety under normal riding situations. Gives advice on merit badge awards, bicycle drill formations, bicycle crafts, campling trips, and other fun ideas.

Bike Ordinances In The Community. A guide for communities, police agencies, PTA, Kiwanis, JayCees, and other civic, social, service, veterans, or fraternal organizations planning to sponsor the adoption of a municipal ordinance to register, inspect, and license all bicycles as an aid in the prevention of accidents and bicycle theft, and to assist in recovery of stolen bicycles. Contains model bicycle ordinance, license plate, registration, and inspection forms, etc. Adaptable for local use.

Bike Quiz Game. An eight-page folder designed to provide accurate facts in quiz form to stimulate youngsters to learn and develop good safety habits. Sections include: 50-question bicycle quiz, bicycle words test, safety matching word test, diagram of bicycle with maintenance quiz, multiple-choice quiz and the Bike Rider's 12 Rules of the Road.

Bike Safety Posters. (9" x 12") A set of eight bright, contemporary posters printed on light stock, suitable for display in windows, classrooms, bulletin boards, etc. Poster titles: "Look Both Ways At Corners," "Ride Right," "Single File," "Observe Traffic Signals," "Ride It Right," "Leave the Clowning To Us," "Safe Bike," "Safe Rider," "Bicyclists, Use Your Hand Signals," "See, Be Seen," "Bicyclists Look Out For Turning Cars, Opened Doors."

Bike Safety Programs. An invaluable 45-page manual for the community undertaking a bike safety program. Includes approved safety projects and promotional ideas, sample tests, safety codes and regulations, safety precautions, proper riding techniques, maintenance, suggested safety programs for schools and helpful hints for community-action groups. Sample bicycle safety proclamations and news stories; bibliography of safety materials.

Bike Safety Publicity Kit. Only available where a project in underway-contains press releases, radio scripts, safety stories, and ideas for successfully promoting bicycle safety programs. Quantities limited, but permission will be granted for easy reproduction.

Bike Safety Tests. A 23-page booklet that provides 24 illustrated tests in balancing, pedaling, braking, maneuvering, mounting, stopping and dexterity in handling the bicycle. It has material for written tests, too. This know-how on how to ride properly has been extremely helpful to community leaders, police departments, school safety directors and others concerned with the welfare of the young bicycle riders in their communities.

Bikeways. Plan for Community Action--Full color brochure explaining the dramatic growth of marked bicycle routes, paths, and trails. Shows what individuals or communities can do to promote the Bikeways concept. Strong quotes from public figures supporting Bikeways and bicycle recreation; official Bike Route signs shown in color, list of program helps. Should be available in reasonable quantities for club distribution.

BOOKS

Bicycle Skill Test - American Automobile Association Foundation for Traffic Safety, 734 15th Street, NW., Washington D.C. 20005; or Carolina Motor Club, 701-3 South Tryon Street, Box 60, Charlotte, North Carolina 28201.

Consumer Guide to Bicycles. Popular Library, 445-08200-150.

Cuthbertson, Tom. Anybody's Bike Book. Ten Speed Press.

Kleeberg, Iren Cumming. Bicycle Repair. Watts, 1973, 60 pp. $3.95. Covers basics of bicycle care and repair; written in fairly simple terms that most readers can understand; many full-page photographs and drawings illustrate text.

McIntyre, Bibs. The Bike Book. New York: Harper & Row, Inc.

Sloane, Eugene. The New Complete Book Of Bicycling. New York: Trident Press, 1974.

Teacher's Guide to Bicycle Safety Activities and Projects. American Automobile Association, Carolina Motor Club, P.O. Box 60, Charlotte, North Carolina 28201.

RESOURCE LIST

SCHOOL BUS

FILMS

And Then It Happened. (18 min. 16 mm, color) Available from Seven Oaks-Starbecker, Inc., 9145 Sligo Creek Parkway, Silver Springs, Maryland 20901.

School Bus Safety With Strings Attached. (1964, 16 mm, b & w, 28 min.) Film features Ray Martinez, National Safety Council school bus safety specialist, and students from Forest View High School, Arlington, Heights, Illinois. Martinez sings, plays the guitar, and uses his talents as a mimic and pantomimist to get across school bus safety in a unique way. Available from National Safety Council, 425 North Michigan Avenue, Chicago, Illnois 60611 (p).

PAMPHLETS

Safety in Pupil Excursions. Safety Education Data Sheet #51, Stock No. 429.04-51. Available from National Safety Council, 425 North Michigan Avenue, Chicago, Illinois 60611.

School Bus Passengers. Safety Education Data Sheet #63, Stock No. 429.04-63. Available from National Safety Council, 425 North Michigan Avenue, Chicago, Illinois 60611.

School Buses: Administrative Problems. Safety Education Data Sheet #11, Stock No. 429.04-11. Available from National Safety Council, 425 North Michigan Avenue, Chicago, Illinois 60611.

RESOURCE LIST

FARM VEHICLES

FILMS

Farm Tractor Safety. (color, 10 min.) Film uses miniature tractor with remote controls to demonstrate how to operate and refuel. Available from American Petroleum Institute, Committee on Public Affairs, 1271 Avenue of the Americas, New York, New York 10020.

Farm Tractor Safety - A Family Affiar. (1961, 16 mm, color, 22 min.) Film emphasizes family and community approaches to farm safety and the serious consequences of a lack of safety knowledge and practices. Available from John Colburn Associates, Inc., 1122 Central Avenue, Wilmette, Illinois 60091 (p).

or

New York State College of Agriculture and Life Sciences, Department of Communication Arts, Roberts Hall, Cornell University, Ithaca, New York 14850 (r).

Safe Operation of the Tractor. (1973, 16 mm, color, 14 min.) The film trains a young operator in the daily service of the tractor to the point where he demonstrates his proficiency as an operator. Available from National Safety Council, 425 North Michigan Avenue, Chicago, Illinois 60611.

Within The Frame of Safety. (color, 20 min.) Available from International Harvester Company, 180 North Michigan Avenue, Chicago, Illinois 60611.

FILMSTRIPS

Play It Safe. This filmstrip covers highway operation of the tractor as well as other objectives. Available from Ford Motor Company, Dearborn, Michigan.

Setups For Upsets - shows most common causes of tractor upsets, with script; black and white, National Safety Council, 425 North Michigan Avenue, Chicago, Illinois 60611 (p).

Tractors and Traffic - shows ways to avoid accidents on highways and roads, with script; color, National Safety Council, 425 North Michigan Avenue, Chicago, Illinois 60611 (p).

BOOKLETS AND PAMPHLETS

Avoid Tractor Upsets. A.A.A. Carolina Motor Club, 701-3 South Tryon Street, P.O. Box 60, Charlotte, North Carolina 28202 (7-9).

Eight Steps to Combine Safety. National Safety Council, 425 North Michigan Avenue, Chicago, Illinois 60611 (7-9), $.03.

How To Get Your Wagon Rolling Safely. National Safety Countil, 425 North Michigan Avenue, Chicago, Illinois 60611 (7-9), $.03.

Petroleum Power Tractor Series. (Getting Acquainted With Your Tractor, Assuring Safe Efficient Operation, Improving Your Skills, Machinery Care and Safety) 4-H National Service Committees, Inc., Program Services, 150 North Wacker Drive, Chicago, Illinois 60606.

Prevent...Protect Tractor Upsets. National Safety Council, 425 North Michigan Avenue, Chicago, Illinois 60611 (7-9), 4 pages, $.03.

Program Guide for Traffic Safety National Safety Council, 425 North Michigan Avenue, Chicago, Illinois 60611 (7-9), 4 pages, $.03.

Tractor Operations and Protective Frames. National Safety Council, 425 North Michigan Avenue, Chicago, Illinois 60611 (7-9), $.45.

Tractors and Traffic. A.A.A. Carolina Motor Club, 701-3 South Tryon Street, P.O. Box 60, Charlotte, North Carolina 28201 (7-9).

OTHER

Farm Safety Week Kit available in May from National Safety Council.

PRE-DRIVER EDUCATION

LEVEL D - GRADE 8

TABLE OF CONTENTS

Page

Review - Pedestrian and Bicycle Safety

Teacher Information 170
Activities. 173

History of The Automobile

Teacher Information 186
Activities 187

Automotive Safety Features

Unit Outline 205

Unit Concepts:

I. Automotive Safety Features 206
II. The Function of Safety Belts 212
III. Passenger Responsibilities 226

Trip Preparation

Unit Outline 231

Unit Concepts:

I. Map Reading Skills 232
II. Planning a Trip 236
III. Emergency Procedures 240

Traffic Signs, Signals, and Markings

Concepts Content 249
Activities 251

TABLE OF CONTENTS (cont)

Motorcycle Safety Page

Unit Outline 267

Unit Concepts:

I. Causes of Motorcycle Accidents 268
II. Limitations of a Motorcycle 271
III. Types of Motorized Cycles 276
IV. Parts of Motorized Cycles 280
V. Preride Checks and Preventive Maintenance 283
VI. On-the-Road Motorcycling 286
VII. On-the-Trail Motorcycling 292
Action Projects 296
Just for Fun 321
Resource Lists 325

LIST OF MASTERS

Page
1. Jury Duty - Hutchins v. Howell . . . .
2. Jury Duty - West v. Hauser 179
3. The First Horseless Carriage 182
4. The Merry Oldsmobile 191
5. The Tin Lizzie 193
6. Detroit to New York 194
7. Safety Firsts 196
8. A Timeline for Safety 200
9. Safety News 209
10. Passenger Safety State Laws 210
11-13. Fact vs. Myth 211
14. Pros and Cons 215-220
15. Year 2025 221
16. Test Your Map Reading Skills 223
17. Emergency Safety Equipment 234
18. Emergency First Aid Treatment 239
19. How to Call for Help 242
20. Crash - Then What? 244
21. Traffic Signs 245
22. Traffic Signs and Markings 254
23. Special Signs/Special Messages 256
25. North Carolina Motorcycle Laws 260
26. Odd Word Out 291
27. What's Up? 321
. . . . 323

INTRODUCTION

The resource units for the eighth-grade section are designated to focus the student's perspective toward the responsibilities of an automobile driver and toward some of the factors with which the automobile driver must deal.

The section is divided into subsections which are called units. Units simply designate a convenient grouping of content; the term is not intended to mean any more than that.

One way to begin your teaching plan is to peruse the Action Projects resource unit. Action Projects are suggestions for projects which will allow your students to assume more responsibilities as models for younger children or as members of their community. Content and discussion material may be drawn from the other resource units in this volume.

The first resource unit listed in this section presents a review of pedestrian and bicycle safety with entertaining activities--many action projects relate to this subsection.

The next resource unit presents material for exploring the history of the automobile. The automobile has had an overwhelming influence on American social and economic history. The first years of the automobile age make colorful, entertaining reading, as well as point out the basic problems that even drivers today must face. Those problems--good roads, good laws, good vehicles, good drivers--are less critical now. The students can better appreciate the highway system today if they understand how that system developed.

The Automotive Safety Features resource unit discusses safety features--then and now--which protect drivers and passengers. The Trip Preparation unit presents skills a driver must have for safe, pleasant journeys. The ability to use Traffic Signs, Signals, and Markings is another important driver skill.

Many of your students are already off-the-road motorcyclists and many will take to the road in a couple of years. The Motorcycle Safety resource unit explores the safety concepts a good motorcyclist should be able to use. Most important, here is the ability to analyze situations, to identify hazards, to assess risks, and to make sound decisions in order to avoid injury.

These resource units were prepared to give you resources and freedom to choose those topics which best suit your students' needs and your own interests.

REVIEW - PEDESTRIAN AND BICYCLE SAFETY

Teacher Information

I. Review of Pedestrian Safety
  A. Accident Facts
    1. Pedestrian accidents account for one-fifth of N.C. traffic deaths.
    2. These accidents are more severe than other types of accidents; pedestrians are likely to be seriously hurt because they are not protected in any way.
    3. Half the deaths or injuries happen to pedestrians under 15 years old.
    4. The six most common accident types for their age group are:
      a. Crossing somewhere other than at an intersection or dashing into a street.
      b. Emerging from behind parked cars.
      c. Crossing against the light.
      d. Crossing with the light before checking for traffic.
      e. Playing in the street.
      f. Nighttime accidents; pedestrians are not easily seen by auto drivers in the dark.
  B. Basic Rules
    1. The two basic pedestrian safety concepts are look for cars and make sure drivers see you.
    2. Basic Rules of the Road
      a. Obey traffic signs and signals.
      b. Use the sidewalk; if there isn't one, walk on the left facing the traffic closest to you.
      c. Cross at corners if possible; if you can't, make sure you check several times for traffic before crossing.
      d. When walking at night, wear white or reflective clothing or carry a flashlight; this is especially important on rural roads.
      e. Never assume a driver sees you or will stop for you; take care of yourself in traffic.

Additional pedestrian safety information is on pp. 8-32.

Teacher Information

II. Review of Bike Safety

- A. Accidents Causes
  - 1. Bike accidents happen most often at intersections and at the crest or just over the crest of a hill.
  - 2. Most accidents happen in city residential areas; most deaths occur on high speed rural roads.
  - 3. One-fourth of the accidents involve bikes in bad mechanical condition.
  - 4. Entanglement of feet or legs and riding a bike which doesn't fit are common causes of loss of control.
  - 5. Disobeying Rules of the Road.
- B. Preventing Accidents
  - 1. Bicyclists must obey the Rules of the Road just as auto drivers must (State law).
  - 2. The law states that a bicyclist riding at night must use a light visible for 90 meters (300 feet) and a reflector visible for 60 meters (200 feet).
  - 3. Basic concepts for bicycle safety are look out for cars, make sure car drivers see you, and maintain control of the bike.
  - 4. Ways to prevent accidents
    - a. Slow down or stop at intersections; make sure you have right-of-way before proceeding; walk bikes at busy intersections.
    - b. After passing the crest of a hill, if there is no oncoming traffic, pull into the left lane for a short distance; if there is oncoming traffic, ride to extreme right and keep checking to rear for cars; keep a lookout for places to escape to if cars don't seem to see you. (This is an adult rule, so use by children under 12 is not recommended.)
    - c. Signal before turning.
    - d. Drive in a straight line; don't weave in and out of traffic.
    - e. Keep your bike in good mechanical condition. Master for reproduction, p. is a maintenance checklist.
    - f. Dress like a bike pro; clip or roll up belled pants legs; wear tight-fitting shoes; no sandals or bare feet.

Teacher Information

g. Maintain control by not carrying passengers, by carrying packages in baskets only, and by not stunting, especially on streets.

h. Expect the unexpected; keep eyes open for cracks, gravel, drains, pedestrians, dogs, etc.

i. Use less traveled roads to avoid traffic.

j. Ride on the right, with traffic.

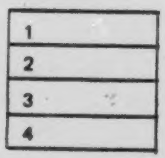
k. Use lights and reflectors at night.

Note: More detailed information about bike safety is on pp. 35-128.

Concept: Review of Pedestrian and Bicycle Safety (cont)

Objectives	Activities
1. Students will demonstrate knowledge of basic accident causes and how to prevent them.	1. See Action Projects, p. 296, for ways the students can use what they know to teach others about pedestrian and bike safety. 2. Discuss causes of pedestrian and/or bike accidents. Ask: Has it been easier to be a pedestrian or biker since you have studied the safety unit? how has the unit affected you? what bike or pedestrian hazards have you noticed in the last year? Is it getting safer or more dangerous for bikers or walkers in the community? 3. Construct the following concentration type game. Use traffic signs and signals for the "matches." Underneath draw and script out a pedestrian or bicycle safety rule. a. Use a large piece of heavy acetate. Take pieces of wide clear tape and fold part of each piece lengthwise so that half of the other part will not stick. Make four equally spaced horizontal rows on the acetate using this tape so that the nonsticky half is at the top.

Concept: Review of Pedestrian and Bicycle Safety (cont)

Objectives	Activities
	 You have a transparent board with four troughs running horizontally. Anchor the troughs at each end. Hinge the top of the acetate to the inside of a box lid to keep game board stable. b. Next you need 80 small thin pieces of cardboard to fit on your game board. Take a piece the same size as the acetate. Mark into four rows of 10; number 1 to 40; and cut. Repeat this process, this time drawing or pasting 19 pairs of traffic signs (plus a pair of wild cards) to the squares. Set up your board by first arranging the match cards randomly and then placing the numbered cards in order on top of them. When the students play they can remove the numbered card to see the match card. When a match is made, remove the matches; part of the puzzle is shown through the acetate. c. Now you need the puzzle. Use your imagination to picture the bike or pedestrian safety rules. The board can be endlessly rearranged for as many puzzles as you can

Concept: Review of Pedestrian and Bicycle Safety (cont)

Objectives	Activities
	muster (ask the students to help draw them). The game board is readily adaptable to any subject so make up new puzzles and match cards as desired. d. You need two players or two teams. If played by teams, each player gets one turn. Rules: 1) Decide by a coin toss who goes first. 2) First player names two numbers and the match cards behind those numbers are revealed. 3) If the cards match, they are removed, revealing a part of the puzzle; that player or team guesses the rule. 4) If playing individually, the player gets to name two more numbers, and so on, until no match is made; if playing in teams the next teammate gets a turn after each match. 5) If no match, the other team or player names two numbers.

Concept: Review of Pedestrian and Bicycle Safety (cont)

Objectives	Activities
	6) Play continues until the puzzle is guessed. 4. Put the students in the driver's seat. Ask several students to play devil's advocate for the question: Should bikers get their share of the road or should bicycles not be allowed on the street? 5. Jury Duty (Mock Trial). On p. 179 is a story of an actual N.C. court case. (The names have been changed.) This activity is designed so that you may read the case to the class and discuss it with them, or the students may dramatize the story. Other directions and teacher aids are on pp. 177-178: Hutchins v. Howell is a pedestrian accident case; West v. Hauser is a bike case, p. 182.

JURY DUTY

(mock trial)

This story represents a simplified version of an actual court case. Present them to the class or have the class act out the court scenes. (Note: A diagram of the situation is a must.) Encourage the students to say how the accident might have been avoided and who was at fault. Discussion questions should include: Who was legally responsible (liable) for this accident? What factors led to the accident (actions or road conditions)? At what point was the accident unavoidable? How could it have been avoided? Who had the last chance to avoid the accident? The court's decision is on the back of the master. (The names have been changed in the story.)

Before you read the stories, go over this point of law. Drivers of vehicles (including bicycles) and pedestrians must take care of themselves in traffic. They must obey the law, keep a sharp lookout, and avoid an accident if they see "a last clear chance" to do so. If the injured party was not doing all these things, he helped cause the accident; since both parties were to blame, the defendent cannot be judged solely to blame. This is true even if the defendant violated the law.

It also might be wise to discuss the differences between civil and criminal courts. Many of these cases are tried in civil court where one individual sues another, usually to gain money for damages. Manslaughter, a criminal charge, is tried in criminal court where the State prosecutes an individual. (Perry Mason is always in a criminal court.) The rules which govern the court procedures are basically the same.

COURTROOM DRAMA

If students want to take the case and turn it into a courtroom drama, here is the cast of characters and the general trial procedure. This procedure is greatly simplified; feel free to adapt it to your own needs.

Cast of Characters

Judge
Bailiff - swears in witnesses

Court recorder (optional) - takes down everything said in court; if no one knows shorthand, a tape recorder can be used.
Plaintiff (and representative if plaintiff is a minor)
Plaintiff's attorney
Defendant
Defendant's attorney
Various witnesses
Jurors - need 12

COURTROOM PROCEDURE

1. Judge calls court to order.
2. Jurors are chosen.
3. Plaintiff's attorney outlines accident and explains case from the plaintiff's viewpoint.
4. Defendant's attorney outlines case from defendant's viewpoint.
5. Plaintiff's witnesses are called and cross-examined.
6. After plaintiff's case has been presented, the plaintiff or defendant may "move for a directed verdict"--meaning that the case is so clear cut that no more evidence is needed to vindicate or clear the client.
7. If the judge refuses, the defendant calls the witnesses and presents the defense.
8. After the defense is presented, the defendant moves for a "non suit"--meaning the plaintiff clearly has no case and the case should be dismissed. If the judge refuses, continue with 9-13.
9. The plaintiff's attorney makes a closing statement to the jury.
10. The defendant's attorney makes a closing statement.
11. The judge instructs the jury on the laws in the case.
12. The jury returns a verdict on the facts of the case.
13. The judge passes sentence.

If you are a social studies teacher or if the social studies teacher would like to cooperate in this activity, perhaps you would like to invite a real lawyer to come in and explain the court procedure in detail. A practicing lawyer could be a great help to the students in setting up a truly lifelike courtroom.

JURY DUTY

Burley Hutchins v. John C. Howell, Jr.

(This is a real court case. Only the names have been changed.)

The Accident. Burley Hutchins, 25 years old, was walking from his brother's house on Bryant Lane to his house across Main Street. Bryant Lane ends at Main Street, forming a T-intersection. It was eleven o'clock at night. There was a street light at the corner. When he started to cross the street, he saw the headlights of a car, driven by John Howell, appear at the crest of a hill 100 meters (300 feet) away. He started across the street at a normal pace. The posted speed limit was 55 km/h (35 mph). He realized the car was going faster than he had thought at first, perhaps 80 km/h (50 mph). He continued across, trying to reach the curb. The driver of the vehicle did not slow down, brake, or sound his horn. When Hutchins was about 1 meter (3 feet) from the curb, the car struck him. He had both legs broken in the accident.

The Witness' Testimony. Burley Hutchins reported that to the north of the intersection, 90 to 100 meters from it, there is a hill crest beyond which the plaintiff could not see. When he looked to his right, he saw the lights of the defendant's car, southbound, at the top of the hill. This was before he started to cross the avenue. He testified: "I did not take my eyes off it. The car was going 80 to 90 km/h (50 to 55 mph), and it was a block away. I walked right across the street in front of it, keeping an eye on it at all times." Having demonstrated in the presence of the jury the speed at which he was walking, the plaintiff continued to testify as follows: "I would say I could continue across like this because there wasn't any traffic at that time. The way I just walked here is the way I walked that night. I walked at that same pace from the time I started until I got hit. As to whether I speeded up at all, when I realized that the car was gaining on me, I tried to get out of the way because I was almost across the street at the time I was hit. I didn't hear the horn blow, no brakes sliding."

At another point in his testimony, the plaintiff testified: "The first thing I saw was some lights. I continued across the street. I didn't know that the car was traveling as fast as it was until I got across the northbound lane and crossed to the southbound lane. That is when I realized that it was going faster than I first thought it were (sic), and then I tried to get out of the way of it. I didn't hear no horn, no brakes applied. He just had me trapped, and I was hit." The defendant offered no evidence.

The Plaintiff's Argument. The plaintiff contributed to his injuries because he:

1. failed to sound his horn,
2. failed to keep a proper lookout,
3. failed to keep his vehicle under proper control, and
4. was exceeding the posted speed limit.

The Defendant's Argument. The plaintiff contributed to his injuries because he:

1. failed to keep a proper lookout,
2. walked from a place of safety into the path of the defendant's car when it was so close that an accident was unavoidable by the driver, and
3. failed to get out of the lane of traffic in which the defendant was traveling when he saw, or should have seen, the car approaching.

You judge: Did the pedestrian contribute to the accident? Or was the driver solely responsible?

THE VERDICT

The Judge and Jury's Verdict. The first time the case was tried the jury decided for the plaintiff. But the defendant appealed, and in the new trial, the decision was reversed. The reasons for the final verdict in favor of the defendant:

Although the defendant was obviously negligent by exceeding the speed limit and the other factors mentioned, the pedestrian, when he realized the car was traveling faster than the speed limit, continued to cross at the same pace. He could have avoided the accident by stopping and yielding the right-of-way or by running or jumping to the curb. "The law imposes upon a person *sui juris* the duty to use ordinary care to protect himself from injury."

Ask the students how they would feel if they were the driver in this case. Does this case mean drivers should drive regardless of speed limits and due care, expecting pedestrians to leap from in front of them? What does it mean to pedestrians?

JURY DUTY

Samuel Foster West, a minor by his guardian *ad litem*, James F. West
v. Leonard Collins Hauser

The Accident. It was a sunny August afternoon. Sam West, 15 years old, and his friend, Ronny Able, were riding their bikes in the lane going north on a two-lane rural road. The weather was clear; the road was straight and level. The posted speed limit was 95 km/h (60 mph). When Leonard Hauser came up over a little rise in the road in the southbound lane, he saw the two boys riding north in the northbound lane about 300 meters (900 feet) ahead. Hauser was traveling about 90 to 95 kmph (55 to 60 mph). A third boy was walking along side the bikers. When Hauser saw the bikers, he blew his horn and the bikers turned around and headed south. They were still in the northbound lane. Ronny Able stopped his bike and was talking with the pedestrian. Sam West continued to ride south in the northbound lane. Leonard Hauser started to slow down when he was about 17 meters (50 feet) from Sam West. He blew his horn again, and when he did, Sam West drove into the southbound lane in front of Hauser. Hauser put on his brakes but was unable to stop. The front of his automobile hit the bicyclist, throwing Sam up over the hood and into the windshield. The car skidded to the right and when it stopped Sam West was found unconscious underneath the back of the car. The plaintiff, Sam West, was seriously injured and was unable to remember the accident or anything that happened just before the accident.

The Witness' Testimony. The other bicyclist, Ronny Able, testified: "When I first saw the car, Sam West going slow. . . . He was peddling slow. He was headed toward Centerville away from Clarence. He was in the left lane, going toward Centerville. . . . I was talking to Jim Bradley and the car was coming down the road. I heard him blow his horn while he was down the road; it blew once or twice, beep, beep. About two telephone poles away, I heard it blow. Then the car got closer. It didn't break its speed and the car got closer. Then I was standing still talking to Bradley. Then I glanced back again. I saw it getting close and Sam, he was riding kind of close to the white line. Then he started toward the white line. I said 'Watch out." He tried to get off the shoulder. He speeded up on his bicycle, trying to get to the shoulder.

"The car went off the shoulder. The car came back, tried to get back on the highway. . . . It hit him and he hit the windshield and got under the car somehow. Then the car skidded down the road sideways. . . .

"I did not see the car's speed decrease until it was right on him. I would say about 20 meters (50 feet). It was pretty close. I did not hear a horn prior to impact. The whole left side of the car was on the highway and I think Sam's front wheel was off the road. . . . I don't recall the automobile ever returning completely onto the highway afer it struck Sam. . . . There was no traffic behind the Hauser vehicle. There was no traffic in front of it." On cross-examination Able testified:

"The only time I heard it blowing was down the highway, about two or three telephone poles back of me. That would have been in back of Sam. And I saw Sam turn to his right, across the highway. And I hollered to him to look out. But he kept on going across the highway and I heard the squalling of the automobile brakes and when Sam got about to the right-hand edge of the highway, that is when the collision occurred. He was peddling fast at that time trying to get off the highway."

You judge. Did the defendant, Hauser, cause the accident by not slowing down or signaling? Or did the plaintiff, West, contribute to the accident by violating Rules of the Road?

The Judge and Jury's Verdict. The verdict was in favor of the defendant. The judge's reasons for the verdict:

1. The boy was 15 years and old enough to act as an adult in traffic.
2. A bicycle is a vehicle under the Motor Vehicle Code of Laws and the bike driver must act as such.
3. The boy contributed to his own accident by riding on the wrong side of the road and then attempting to drive across that road without making sure it was safe to do so and without signalling. He either did not hear the defendant's signals (which his companion heard and he should have) or ignored them. He either failed to look for what was plainly there for him to see, or having seen, disregarded what he saw. He failed to exercise care for his safety as a reasonably prudent person would have done, and thus his actions were a cause of his injuries.

THE HISTORY OF THE AUTOMOBILE

TEACHER INFORMATION - HISTORY OF THE AUTOMOBILE

The first years of automobile industry are among the most colorful of our Nation's history. This concept includes many articles for the student to read about the development of the automobile. Use your discretion in choosing what to teach. The following list of activities refers directly to these articles. The material here just skims the surface of a historical event which changed the American lifestyle. It is history which relates directly to today's newspapers--the petroleum shortage and the unemployment picture are directly tied to Henry Ford's dream of an automobile in every garage.

For further information, turn to Richard Crabb's Birth of a Giant. (Chilton Books, 1969) Most of your students will find it heavy going, but you will find it thoroughly readable and full of lively anecdotes about the people who developed the auto industry.

The major events covered in the student narrative are:

1. The first commercially produced car developed by Charles and Frank Duryea.
2. The Great Chicago Auto Race of 1895, which brought together the auto inventors of America and established the horseless carriage as a viable alternative to the horse and buggy.
3. Ransom Old's development of the Curved Dash Olds, which established the worth of the gasoline powered vehicle and brought about acceptance of the motorcar by the American public.
4. Roy Chapin's record setting trip from Detroit to New York in 1901.
5. Henry Ford's mass production of the Model-T, which made the automobile available to almost all Americans.

CONCEPT: HISTORY OF THE AUTOMOBILE (cont)

Objectives	Activities
Students will understand the social and economic impact of the automobile on American society. Students will understand the significance of the historical development of the automobile on a) the vehicle itself, b) roads and highways, and c) traffic safety laws.	1. Have students read "The First Horseless Carriage" and "The Great Chicago Race" (P. 191). Ask: What were the problems of the first automobiles discribed in the Chicago Race? (Bad roads, poor road signs, drivers had to do own repairs) "What other problems do you imagine the first horseless carriage drivers encountered?" 2. Have students read "The Merry Oldsmobile" (p. 193) Ask them to find out how many cars an Oldsmobile factory can produce in a year today. Discuss the section. 3. Have students read "The Tin Lizzie" (p. 194). Ask them to imagine living with no access to an automobile or bus. What would they do for fun? How would they get to school? How would it affect their family's income? 4. How is your community affected by the automobile? Imagine your town without motorized vehicles for a full day. What businesses would be affected? What services could not be received? How would it affect recreation?

Objective	Activities
	5. Have students read "Detroit to New York." (p. 196). Ask: What problems did the horseless carriage driver face in 1901? How are these problems solved today? Are some of the problems Roy Chapin encountered still problems today? (There was an element of driver error in his first accident.) 6. Have the students go to the library and find pictures of old automobiles. At one time, over 300 different cars were manufactured in America alone. Pictures will greatly enhance this unit. Students might develop a bulletin board or collage of old autos. For $1.95 you may purchase Automobiles of America from the Wayne State University Press, Detroit, Michigan, an excellent reference book. Another entertaining reference is The Story of the American Automobile by R. E. Anderson, 1950. 7. Ask the students to list all the job titles they can think of related to automobiles. Have them research topics such as:

CONCEPT: THE HISTORY OF THE AUTOMOBILE (cont)

Objective	Activities
	a. Employment in the automobile transportation and related industries--both in numbers and payroll. b. The relationship of the petroleum industry to the automobile. How does the oil get from the ground to the gas tank? Go to the newspapers and discuss current events caused by this relationship. 8. Invite people with jobs related to the auto industry to discuss their careers (gas station owners, insurance men, traffic engineers or policemen, etc.). 9. Use the article "Safety Firsts" (p. 200) to discuss traffic laws. Traffic laws grew up with the automobile. Ask what some of the developments which changed traffic laws were (better roads, better vehicles, more vehicles). Why did States or countries need to develop traffic laws rather than separate communities? What do you think the first laws of this type were? Are traffic laws for the personal pro-

CONCEPT: THE HISTORY OF THE AUTOMOBILE (cont)

Objective	Activities
	tection of individuals or for the restriction of individuals? 10. Other topics of interest are special clothing developed for the horseless carriage and advertisement campaigns for the first cars (races, stunts, etc.). 11. See Action Project, The History of the Automobile in Your Community, p. 310.

THE FIRST HORSELESS CARRIAGE

The "Gay 90's" heard the first chug-chug of the machine which would transform the American way of life. If you had peeked into Frank Duryea's barn in Springfield, Massachusetts, on September 20, 1893, you would have seen a smart-looking buggy waiting for its first trial run. Frank Duryea, a 23 year old bicycle mechanic, had built his first horseless carriage! He and his friends pushed the buggy out of the barn under the cover of darkness so that no one would steal his idea. His friends gave the carriage a running start. With a putt-putt and a cloud of smoke Frank Duryea drove away on the Great American Adventure - the horseless carriage! That first drive only lasted 60 meters (200 feet) but it convinced Duryea that his idea was sound.

As far as Duryea knew, he was the only man in the world working on a horseless carriage. However, several European companies were building horseless carriages for sale already. Duryea worked on several improved models. Then he and his brother Charles, the businessman and designer of the first carriage Frank built, formed the Duryea Motor Wagon Company to offer the Duryea Motor Wagon for sale to the public.

THE GREAT CHICAGO RACE

In 1895, the publisher of the Chicago Times-Herald announced the first race in the United States for self-propelled road vehicles. He expected two or three American entries plus some imported vehicles. To his great surprise, over 100 people telegraphed the Chicago paper for entry blanks. Almost all of these people had developed a self-propelled vehicle completely alone. All over the prairie States and New England, mechanics had worked, despite the jeers of their neighbors, to build electric, steam-powered, or gasoline-powered vehicles. The Great Chicago Race brought them together and gave a new respectability to a formerly "crackpot" occupation.

The Great Chicago Race was held on Thanksgiving Day, 1895. Of the 92 contestants entered, only four gasoline-powered vehicles and two electric vehicles showed. Others were unable to finish their machines in time or failed to make it to Chicago because of the snow. And snow they had - piled in huge drifts along the roads. The race was shortened due to the weather. The course ran from the Chicago Fairgrounds to Evanston and back--a distance of 88 kilometers (55 miles). The electrics would never make it in the cold. The real contenders were Frank Duryea, Oscar Mueller in a modified German Benz and two other Benz vehicles. Each vehicle carried a passenger to act as a judge.

Frank Duryea set off. Almost immediately Duryea's machine ran into a snow bank and snapped the steering mechanism. Duryea brought out his tools and repaired it in an hour. He lost his way because the road was not marked clearly. The cylinders burned out later in the race and another hour was lost repairing it. Despite all these delays and repairs, Duryea pulled across the finish line amid wild cheering. He had just set the world's record for 88 km (55 miles) - 7 hours and 53 minutes! The best stagecoach could not have moved passengers that distance on snowy roads in even 10 hours. The days of the horse and buggy were numbered. In just 5 years there would be 58 companies selling self-propelled vehicles in the United States.

THE MERRY OLDSMOBILE

By 1900, everybody in America was taking the horseless carriage seriously. Before that, most people thought the buggies were just toys.

Nearly 60 companies were making self-propelled vehicles - either electric, steam-powered, or gasoline-powered. Most companies turned out only about 25 vehicles a year. But in 1900, a young man named Ransom Olds moved to Detroit and started a factory which would revolutionize the industry.

Ransom Olds worked in his father's engine repair shop in Lansing, Michigan. Motors fascinated him. When he was 18, he designed and built a steam engine. By 20, he had built an exceptionally efficient gasoline engine. And 2 years later, in 1886, he started using his own horseless carriage. He was convinced even then of the future of the horseless carriage. "It never kicks or bites," he said, "never tires on long runs and never sweats in hot weather. It does not require care in the stable and only eats while on the road."[1]

By 1900, Olds was ready to start his first factory. He formed the Olds Motor Works. Businessmen in Detroit were willing to risk their money on the Olds vehicle. So Olds moved from Lansing to Detroit and broke ground for the biggest horseless carriage factory in the world. Olds' factory produced 11 different models of gasoline-powered vehicles. But by 1901, the company was in financial trouble. Then a gasoline explosion and fire destroyed the factory. The only carriage that was saved was the factory mascot - the Curved Dash Olds. The Curved Dash was a jaunty little buggy with a "curved dash." It looked like a Currier and Ives sleigh on wheels. Ransom Olds put all his money on this little car. To gain publicity, an employee drove from Detroit to New York's Second Annual Auto Show. This drive set another world record. Orders for the Curved Dash came pouring in. In 1902, Ransom Olds Motor Works produced 3,299 Curved Dash Olds. The world had known nothing like that production record. The Curved Dash became the country's most popular horseless carriage; the top tune of the year was "My Merry Oldsmobile." Ransom Olds established the gasoline-powered horseless carriage as a permanent part of American life. By 1906, the horseless carriage era was over; America had moved into the age of the automobile.

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[1] Birth of a Giant, by Richard Crabb, Philadelphia: Chilton Book Company, 1969, p. 44.

THE TIN LIZZIE

In the first years of the twentieth century, the motorcar was the proud possession of the wealthy doctors, lawyers, and businessmen. In 1906, a spare ex-farm boy from Michigan, named Henry Ford, started on the road toward the car which shaped our country's history more than any other single invention. Hank Ford had been building cars and going bankrupt for a number of years. In 1906, the financial success of his third company gave him a chance to work toward his dream.

Henry Ford had grown up as a poor farm boy. He knew the back-breaking work, the boredom, and the isolation of farm life. His dream was to build a car to replace the "family horse" - cheap, dependable, and heavy enough to endure muddy country roads. In 1908, the first "Tin Lizzie" rolled off the assembly line. It stood high off the ground and was sturdy enough to survive bad roads. Best of all, it cost $950 in 1908 and the price went down every year. (In 1925 it sold for $240.)

Henry Ford wanted everyone to have a car - and he built a car every-one could afford. The Model-T in 1908 offered the most advanced auto engineering possible. Ford was able to keep prices low by making no changes at all in the "tin lizzie" from 1908 to 1925.

Another reason for the low prices was Ford's genius in introducing the assembly line to the American factory. American car manufacturers had used interchangeable precision parts for years. They had "assembled" cars from motors made in one place and body parts from another. Ford developed these ideas into a startling new concept. In 1909, Ford and Buick were producing about 17,000 cars a year each. In just 3 years, the Ford assembly line plant was turning out 170,000 cars a year. (Buick made 26,800).

The Model-T revolutionized American life. People in rural areas could broaden their lives. They could run into town quickly; farmers' wives joined domestic science classes and other social clubs. Education changed - school buses appeared - the one-room school began to disappear. Farm children saw city life and left the farms for concrete pastures. Industries no longer had to locate within walking or trolley-car distance from workers. Recreation changed.

The widespread use of the automobile produced massive changes in American life. Thousands of new jobs were created. Auto theft and the get-away car became part of American crime. Automobile accidents became the American way of death. In 1913, there was one death per 188 automobiles on the road. The public began to demand that someone do something about the mechanical menace.

Most important of all Henry Ford made owning an automobile one of American's basic rights. An automobile became a part of the American Dream. America became the nation on wheels.

DETROIT TO NEW YORK

On a cool clear day in October, Roy Chapin tucked a packet of motor head gaskets under the driver's seat and stood back to look with pride at the Curved Dash Olds. This horseless carriage had real personality. The dashboard curled jauntily at the driver's feet - it was a sporty little buggy and it looked ready to go. Then Roy gave the crank a turn, jumped into the Olds, and started off on the longest journey yet attempted in a horseless carriage - Detroit to New York. It was October 29, 1901.

The fate of the Olds Motor Works rested on his shoulders. Back in March, the Olds factory had burned to the ground after a gasoline explosion. Only one car had been saved - the little Curved Dash Olds. Most people thought the Curved Dash was just a big toy. Most of the other horseless carriages built were big, heavy, expensive monsters. But Ransom Olds believed in the Curved Dash. When he rebuilt his factory, he only produced the sporty little machine.

The motors for the Curved Dash were built in the shop of the mechanical wizard Henry Leland (who later made Cadillacs). The transmissions were built in a shop owned by two brothers, John and Horace Dodge. The Curved Dash was selling well in Michigan. But if the Olds was going to make it big, people all over the country needed to know that someone was making cars in Detroit. Ransom Olds himself asked 21-year-old Chapin to make this trip to the second New York Auto Show, which opened November 2. The publicity from such a tremendous trip would bring thousands of orders into the Olds factory.

Roy and Olds had planned his trip carefully. He would go east from Detroit into Canada to the point where the Niagara River empties into Lake Erie. Then he would travel across New York along Lake Erie to Rochester, then south to Syracuse, to Albany, and along the Hudson River to New York. Roy had to know his route - there would be few roadsigns and he couldn't very well ask a Canadian farmer - "Which way to New York?" The trip would be about 1280 kilometers (800 miles).

Roy and an engineer had checked the Olds out carefully. He installed the first speedometer ever to be used on a car. And he packed every spare part he could think of. If something went wrong, it would be up to him and the local blacksmith to fix it.

Now Roy was on his own! The wind brushed through his hair as the Curved Dash chugged along. In 5 days he would be in New York City! But Roy didn't see into the future.

The first day Roy drove only 80 kilometers (50 miles) to Leamington on the Canadian shore of Lake Erie. He had gotten a late start and darkness was falling. The next big town was too far away to reach without a lot of night driving.

Roy jumped out of bed the next day, eager for the trip. Dawn was just breaking as he set out along the lakeshore road. The road was in great shape - Roy pushed the accelerator to the floor. He zoomed along at 50 to 55 kilometers per hour (30 to 35 mph). He laughed out loud. Only a train could beat him in a race - and it might be a close race at that!

He made good time - by noon he had driven three times farther than a wagon and team of horses could have travelled in a whole day! Roy found a country store that sold gasoline near London, Canada. At this rate he could reach Brantford, on Lake Ontario, by dark. In fact, he reached Brantford at 3 p.m. and chugged right through town toward St. Catherine's, 80 kilometers (50 miles) further east. St. Catherine's was near the famous high suspension bridge over the Niagara River where he had planned to reenter the United States.

As darkness fell, he could see the lights of St. Catherine's. The Olds was not really equipped for night driving; it had only two little carriage lamps. But Roy decided to push on. He was so close!

Bam! The Curved Dash hit a large rock in the middle of the road. Roy got the motor going, but the steering was almost impossible. Roy and the Olds wobbled into St. Catherine's. Roy had traveled one-third of the distance to New York [445 kilometers (278 miles)] in 1 day! He had driven the Curved Dash over farm roads used mainly by cattle and horses. Ransom Olds was so astounded when he got Roy's telegram from St. Catherine's that he thought the Canadian operator had made a mistake. No one could travel that far in one day.

A record had been set, but the Curved Dash was wounded. The front axle was bent by the crash. Roy hammered it out the best he could, but steering was extremely difficult.

No more records could be set. On Thursday, Roy, fatigued from the day before, and the Curved Dash drove into New York State to Rochester, only 240 kilometers (150 miles). Roy gave the Curved Dash a careful service job.

It rained on Friday, November 1st. Roy and the Olds struggled through the mud to Syracuse by noon. Catastrophic news awaited him there. Rains had poured down between Syracuse and Albany. The roads were quagmire. No horseless carriage could make it through that mud. Roy talked to freight wagon drivers in every livery stable in Syracuse. The verdict was the same - no chance. The Detroit to New York race was doomed.

A discouraged, disgusted Roy Chapin sat down to lunch. He would have to telegraph Ransom Olds that the Curved Dash had been defeated by muddy roads! Then a thought struck him like lightning! The Erie Canal stretched from Syracuse to Albany. And the towpath alongside it was used rain or shine. He could drive down the towpath to Albany! Wagon drivers warned him that it was illegal to drive on the towpath. They admitted doctors sometimes used the towpath for emergencies.

Roy grabbed his hat and cranked up the Curved Dash. This was the biggest emergency he'd ever faced. In 15 minutes he was on the towpath.

Roy Chapin was awed by the miles and miles of all-weather road that stretched before him along the canal. He drove through a shower but no mud slides threatened the Curved Dash. Why weren't there roads like this all over America?

He was just relaxing when a barge and mule team appeared on the horizon. The mule driver cursed at the strange apparatus - the frightened mules just planted their feet firmly. Roy stopped to let the mules pull the barge past. The mules refused to budge. Finally, Roy drove the Olds past the mules - on the canal side of the towpath so the mules would not leap into the water. His ears burned for miles from the muledriver's comments.

By evening, Roy was 88 kilometers (50 miles) from Albany. He spent the night in St. Johnsville. When he started off Saturday morning, he and the Curved Dash were just 320 kilometers (200 miles) from New York.

Roy stopped in Albany to pick up a new axle that had been shipped by rail from Detroit. He got the axle replaced and finally the steering was back to normal. By Saturday night, he was 160 kilometers (100 miles) from New York. The Curved Dash could make it to New York by Sunday.[1]

On Sunday morning the miles rolled under the Old's Wheels. But by noon, ominous clanks were coming from the transmission. The noises grew louder - and Roy just managed to pull into Peerskill, only 72 kilometers (45 miles) from New York. It took him all day Monday to rebuild the transmission.

Tuesday, November 5th, was the great day. Roy Chapin rose at dawn and dressed in his best suit. He arrived in New York at 9:30 looking forward to the sensation he would create. He cruised down Fifth Avenue, only blocks from the Waldorf-Astoria where he would meet Ransom Olds. Suddenly a pedestrian stepped out in front of the Olds. Roy slammed the brakes and swerved. The Olds went out of control and smashed against the curve. A wheel frame was bent! Roy patched it up the best he could and drove to the Waldorf.

The immaculate doorman at the Waldorf looked down his nose at the greasy, grime-covered young man. He ordered him to the service entrance. The man who had driven the longest distance in the world in a horseless carriage went through the back door of the Waldorf to meet Ransom Olds and his friends. Roy Chapin had set a world's record - 1310 kilometers (820 miles) in only 7-1/2 days.

Roy Chapin never forgot his experiences on the road from Detroit to New York. He became one of the nation's biggest advocates for better roads. As Secretary of Commerce under President Hoover, he did much to improve American streets and highways.

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[1] Adapted from Richard Crabb's, Birth of a Giant. Chilton Book Company, 1969.

SAFETY FIRSTS

by Tom Dodds

DO YOU get a kick out of being on the spot when history is made—when things happen for the first time ever?

Most of us do.

Who can forget the awesome spectacle of man first setting foot on the moon back in July, 1969? And weren't you just a little nervous when John Glenn became the first American to orbit the earth, February 20, 1962?

It would have been exciting to be at Kitty Hawk, North Carolina, that crisp December day in 1903 when Orville and Wilbur put the first plane in the air. And what a moving experience it would have been to sit in on the signing of the Declaration of Independence, July 4, 1776, in Philadelphia.

There are some driving safety firsts, too. Not as glamorous perhaps, but important. Many of these devices and developments were introduced in recent years. You probably remember when they first appeared on the scene. There is the lap-shoulder belt restraint system, collapsible steering column, self-sealing tire, windshield washers, symbol-type signs, the yield sign, just to name a few.

But memorable moments in the world of driving aren't all that new. Some not-so-well-known firsts date back many years. A nostalgic trip through the National Safety Council's historical files and Joseph N. Kane's *Famous First Facts* yields some interesting items from times past.

Here's where you would have been and when you would have been there if you'd been present on these historical occasions (in no particular order).

The intersection of 105th Street and Euclid Avenue in Cleveland, August, 1914... If you were standing here waiting for a "walk" sign, you'd never get it. But you would have seen the first electric traffic signal in operation.

It had just red and green lights—no yellow light, and, of course, no walk signal. A bell was rung during the change from green to red. If you're thinking that the red meant "stop" and the green "go," you're only half right. In those days green meant "move."

River Road near Trenton, Michigan, fall, 1911... If you had been here you could have grabbed a paint brush and helped to paint the first lines designating traffic lanes. It was the brainchild of Edward N. Hines, a Wayne County Road Commissioner, who called his idea a "center line safety stripe." At first all these lane lines were laboriously painted by hand.

Edward J. Claypool's house, sometime in 1885...You would have been congratulating Edward J. Claypool as he proudly displayed a letter granting him a patent on what he called a "safety belt for tourists and others." Bouncing out of the car while tooling down a rough road would soon be a thing of the past, providing, of course, people would use their safety belts.

New York City, sometime during 1898... Male chauvinists might not agree with putting this item in a "safety firsts" story, but when Genevra Delphine Mudge slipped behind the steering wheel of a Waverly Electric she became the first woman to drive an automobile.

Birmingham, Alabama, 1903... In the days when there were no windshield wipers motorists went prepared when rain was forecast. Many drivers took along an onion, a plug of tobacco or a piece of carrot when the outlook was damp.

Theoretically, when any of these things were rubbed briskly over the windshield an oily film would be created which would prevent water from collecting. It worked better in theory than in practice, much to the frustration of motorists.

One of the most frustrated was Mary Anderson, a Birmingham, Alabama, society belle. So frustrated was Mary that she made a drawing of a gadget she thought would do the job. It was a simple, manually operated arm to remove snow, rain and sleet. It was patented under her name in 1903, but didn't really catch on until years later.

Boston, 1757... At a meeting of the Board of Selectmen the first speed law in the United States was enacted. The ordinance stated that coaches and carriages should not be driven at a "greater rate than a foot pace."

Reprinted from Family Safety magazine, Summer, 1974.

A New York City street on a summer day in 1902...You're going down Broadway at a breezy 20 miles per hour. Although the speed limit has been a lowly 8 m.p.h. for a long time, the policeman merely waves at you and smiles. You see, 20 m.p.h. is the new speed limit. It's the first increase anywhere from a horse-and-buggy pace to a "motor vehicle" rate of speed.

The change was made when a speed and braking test proved that an automobile could be stopped in 60 feet at 20 miles per hour, while a horse-drawn carriage took 90 feet at the same speed.

New York City, May 30, 1896... Henry Wells of Springfield, Massachusetts, driving a Duryea Motor Wagon, collided with a bicycle, ridden by Evylyn Thomas. It was the first accident involving a motor vehicle to occur in America. Miss Thomas went to the hospital with a broken leg. Wells spent the night in a jail cell.

Central Park West and 74th St., New York City, September 13, 1899... As Henry H. Bliss, a real estate broker, stepped off a streetcar he was knocked down and run over by an automobile driven by Arthur Smith. Bliss died later in Roosevelt Hospital. It was the first documented traffic fatality. Arthur Smith was arrested and held on $1,000 bail, but there's no record of what happened to him.

Pemaquid, Maine, 1625...The first road pavement was completed. Consisting of stones, rocks and cobblestones it gave a lot of bounce to the ounce.

Hartford, Connecticut, March 1895...Tires inflated with air were introduced, taking some of the bite out of the bounce. The first set was installed on a Duryea automobile which won the famous-in-its-day *Times–Herald* race a few months later.

Akron, Ohio, May 11, 1947...The first tubeless tire was introduced.

Canastota, New York, August 23, 1904... Early tires slipped and slid hazardously but relief was on the way in the form of an ingenious invention by a Harry D. Weed. On this date Weed received a patent for a tire chain, a winter driving aid, which to this day is unequaled as a traction device.

Clintonville, Wisconsin, December, 1908...Runaway vehicles were sometimes as much a threat as runaway horses used to be. Otto Zachow and William Besserdich did something about it. On this date they introduced to the world the first four-wheel automobile brake.

New York State, April 25, 1901... If your name was Xavier Yates Zilch you had unusual license plates without even trying. On this date an act was passed requiring owners of automobiles to register their vehicles and purchase license plates which bore the owner's initials. These were the first license plates to appear anywhere.

Baum Boulevard and St. Clair St., Pittsburgh, Pennsylvania, December 1, 1913...The first drive-in service station was opened. It stayed open all night and gave free crankcase service. The first day was somewhat less than a whopping success—only 30 gallons of gasoline were sold.

Pittsburgh, Pennsylvania, 1914... The first automobile road map was published and distributed by the Gulf Oil Co. About 10,000 maps showing roads and routes in Allegheny County, Pennsylvania, were passed out

Stratford-upon-Avon, Warwickshire, England, 1599 or 1600...The first traffic signal safety rule was written. But you wouldn't have been driving when you saw it or heard it. You probably would have been attending the theater, because it was penned by William Shakespeare and it advises: "Stir not until the signal." This bit of good safety sense pops up in Act V, Scene I of *Julius Caesar*.

So, safety's nothing new. It started a long time ago and there have been "firsts" scored periodically ever since. There will be no letup. Shakespeare had words for that, too: "The past is prologue."

New ideas and gadgets will continue to appear. Future safety firsts may not be hailed with super fanfare when they occur, but they could have a dramatic effect on your life—like saving it.

And that beats putting a man on Mars any day. ☐

AUTOMOTIVE SAFETY FEATURES

UNIT OUTLINE

Concepts	Goals
I. Automotive Safety Features	Students will appreciate the safety features of the modern automobile.
	Students will know and recognize the major safety devices on autos.
II. The Function of Safety Belts	Students will understand the function of safety belts.
	Students will develop a positive attitude toward using safety belts.
III. Passenger Responsibilities	Students will know the way a passenger can aid the driver.

CONCEPT I: AUTOMOTIVE SAFETY FEATURES

As soon as the horseless carriage began bumping its way along the washboard roads of America at unheard of speeds of 25 to 40 kilometers per hour (15 to 25 mph), the grease-stained wizards who made them recognized the need for safety features. Some of the safety firsts were things we take for granted now--like using steel instead of wooden bodies and having shock absorbers to cushion your ride.

In 1911, people were thrilled by Cadillac's new-fangled gadget--the electric starter. Up to then, the horseless carriage was started by a crank at the front of the carriage. This cantankerous crank was prone to "kick back" at the driver when he turned over the engine. In 1 year alone, 784 injuries (broken arms, shoulders, and skulls) resulted from using crank starters; that was 284 more injuries than those caused by collisions. With the development of the electric starter and the closed steel body, the age of the horseless carriage gave way to the age of the automobile.

Since World War II, automobile engineers have introduced many new features which increase the safety of automobile drivers and passenges. Some of these features were invented years earlier, but were not widely used until today. Safety glass, first used in 1926, has been greatly improved and now is required by law. Collapsible steering columns have saved many drivers from being impaled by the steering column in a collision. The inside of an automobile is now designed with padded dashboards and rounded knobs and handles to soften a passenger's fall against them. Safety belts were invented long ago, but were not available as standard equipment until 1969.

CONCEPT I: AUTOMOTIVE SAFETY FEATURES (cont)

Objectives	Activities
Students will know and appreciate the safety features of modern cars.	1. While discussing the content with the students, ask them to name all the safety features on a modern car. (mirrors, flashers, bumpers, head restraints, etc.) Are features such as power brakes, disc brakes, quick acceleration capability safety features? (It depends on how they are used.) 2. Have the students visit different auto dealerships and inquire about the safety features of each brand. They may collect literature and rate the different models for various factors--safety, appearance, engine performance. Ask "What safety features would you consider when buying a car? If you were going to buy a car, what features would you consider important?" 3. On pages 209-210, you will find various newspaper articles and advertisements of interest to aid discussion of safety features of the automobile in its infancy and today. 4. Over the years, many laws have been passed to help insure passenger safety both by State legislatures and U.S. Congress. North Carolina

300

301

CONCEPT I: AUTOMOTIVE SAFETY FEATURES (cont)

Objectives	Activities
	has five laws on passenger safety; these are provided as a student handout, pp. 211. Here is an outline of them for your reference. 1. Sec. 20-135 Safety glass 2. Sec. 20-135.1 Safety belts 3. Sec. 20-135.2 Safety belts and anchorages 4. Sec. 20-135.3 Seat belt anchorages for rear seats 5. Sec. 20-140.2 Overloaded or overcrowded vehicles For information concerning national laws on passenger safety, write to U.S. Government Printing Office, Washington, D.C., and ask for Highway Safety Act of 1966.

A TIMELINE FOR SAFETY

1901 - If you were driving from New York to Boston, you could find your way using the first roadside signs erected by the Automobile Club of America.

1903 - Peerless announced the pressed steel frame. Most new cars offered a smoother ride thanks to shock absorbers, and on those roads you needed them!

1904 - If you were crazy enough to hop on the bandwagon of this "automobile" fad, you could study auto mechanics at the first school opened by the Detroit YMCA.

1905 - The first car thief heisted his first car in St. Louis. Travel was made easier by weed tire chains.

1906 - A new option appeared--front bumpers.

1907 - Speeders got a shock in Glenco, Ill. The enraged city fathers had speed-breaking humps built in the street.

1911 - Cadillac introduced the sensation of the year--an electric starter.

1912-13 The all-steel body was featured on the Oakland and the Hupmobile in 1912. The next year, the wrap-around windshield was introduced on Kissel Kars. The horseless carriage days were numbered.

1915 - Cadillac offered the tilt-beam headlight.

1916 - The latest standard equipment for the elite--hand-operated windshield wipers, stop lights, and rearview mirrors.

1918 - Four wheel hydraulic brakes were invented.

1919 - Front and rear bumpers appeared as standard equipment on the Westcott Tourer. The world's first three-color traffic signal was installed in Detroit.

Today the Federal Government has over 200 standards which set minimum rules of performance for all cars sold in the United States. These standards cover everything from license plate lights to tires to front bumpers.

She Had a Better Idea . . .

WINDSHIELD WIPER WAS INVENTED BY A WOMAN

A rainy New York winter inspired a Southern woman to invent the automobile windshield wiper 71 years ago, according to documents in the Birmingham (Ala.) Public Library.

Visiting New York in 1902, Mary Anderson became concerned with the plight of streetcar drivers who had to maneuver the lumbering vehicles as heavy rains reduced visibility to almost nothing.

It was customary in those days for drivers to rub their windshields with an onion, a plug of tobacco, a carrot, or some other substance that produced an oily film on the glass and prevented water from collecting.

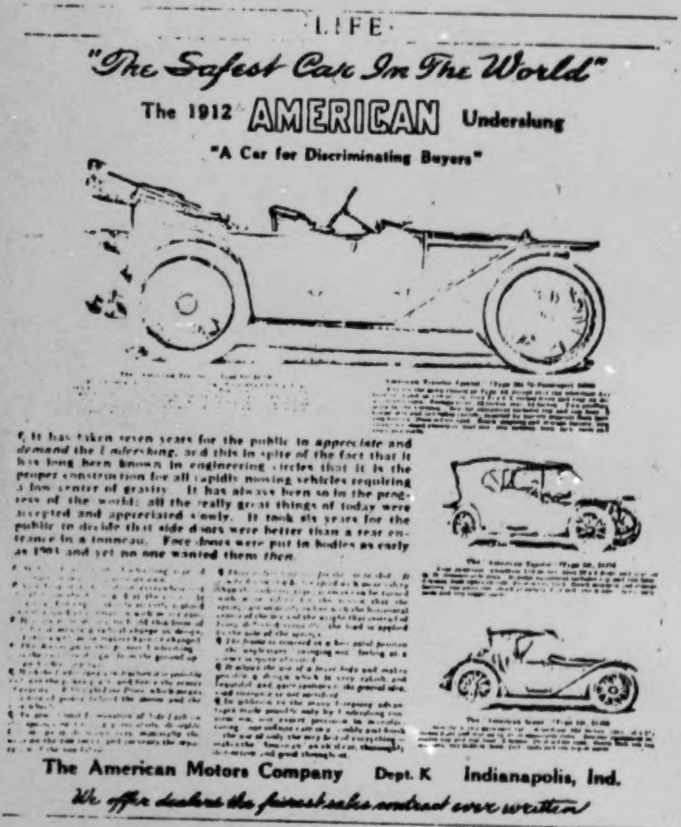
This method, however, didn't work very well. So when Miss Anderson returned to her home in Birmingham, she made a drawing of a gadget she felt would do the job.

A local company made a working model of the device, an arm which removed snow, rain and sleet from the windows of the electric motor cars of that period.

It was manually operated from inside the car by means of a handle.

The invention, termed a "window-cleaning device," was patented in Miss Anderson's name in 1903, but did not become popular until years later.

National Enquirer, May 20, 1973.



LIFE

"The Safest Car In The World"

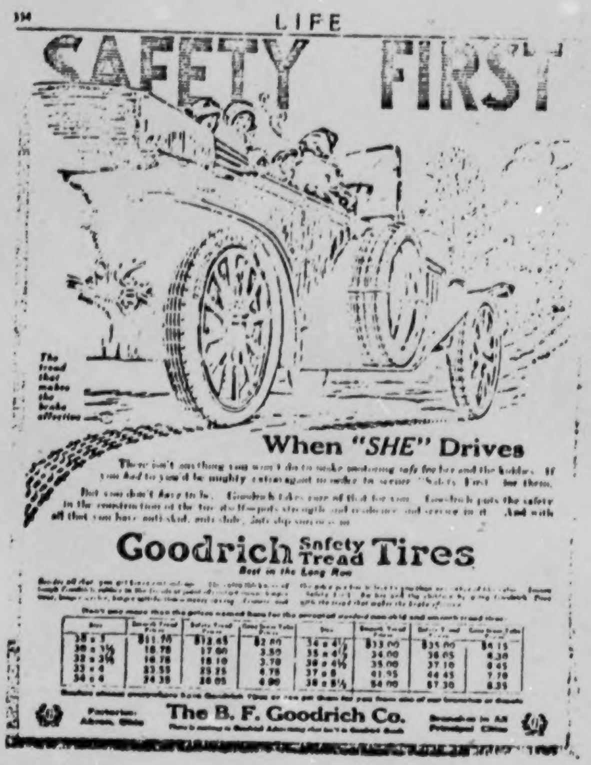
The 1912 AMERICAN Underslung

"A Car for Discriminating Buyers"

It has taken seven years for the public to appreciate and demand the Underslung, and this in spite of the fact that it has long been known in engineering circles that it is the proper construction for all rapidly moving vehicles requiring a low center of gravity. It has always been so in the progress of the world: all the really great things of today were accepted and appreciated slowly. It took six years for the public to decide that side doors were better than a rear entrance in a tonneau. Fore doors were put in bodies as early as 1901 and yet no one wanted them then.

The American Motors Company Dept. K Indianapolis, Ind.

We offer dealers the finest sales contract ever written



LIFE

SAFETY FIRST

The tread that makes the brake effective

When "SHE" Drives

There isn't anything you won't do to make motoring safe for her and the kiddies. If you had to you'd be mighty extravagant in order to secure "Safety First" for them.

But you don't have to be. Goodrich takes care of that for you. Goodrich puts the safety in the construction of the tire itself—puts strength and resilience and service in it. And with all that you have anti-skid, anti-slide, anti-slip

Goodrich Safety Tread Tires

Best in the Long Run

Factories: Akron, Ohio **The B. F. Goodrich Co.** Branches in All Principal Cities

Reprinted from Traffic Safety magazine, May, 1973.

PASSENGER SAFETY STATE LAWS

Sec 20-135 It shall be unlawful to operate knowingly, on any public highway or street in this State, any motor vehicle which is registered in the State of North Carolina and which shall have been manufactured on or after January 1, 1936, unless such motor vehicle be equipped with safety glass wherever glass is used.

Sec 20-135.1 Safety belts. The Commissioner shall establish specifications or requirements for approved type safety belts and safety harness and attachments. No person shall sell, offer, or keep for sale any safety belt, safety harness, or attachment thereto as referred to in the previous subsection for use in a vehicle, unless of a type and brand which has been approved by the Commissioner.

Sec 20-135.2 Every new motor vehicle registered in this State and manufactured, assembled, or sold after January 1, 1964, shall at the time of registration, be equipped with at least two sets of safety belts for the front seat of the motor vehicle.

Sec 20-135.3 Every new motor vehicle registered in this State and manufactured, assembled, or sold after January 1, 1966, shall be equipped with sufficient anchorage units at the attachment points for attaching at least two sets of safety belts for the rear seat of the motor vehicle.

Sec 20-140.2 No person shall operate upon a highway a motor vehicle which is so loaded or crowded with passengers or property, or both, as to obstruct the operator's view of the highway, including intersections, or so as to impair or restrict otherwise the proper operation of the vehicle.

CONCEPT II: THE FUNCTION OF SAFETY BELTS

Safety belts were the engineer's way of getting around some of nature's laws of motion. One of those laws is the law of inertia--the tendency of a body in motion to stay in motion. What does inertia do to occupants of a vehicle in a crash? Studies of crashes at only kilometers per hour (18 mph) show that the driver will first fly into the steering wheel and then the top of the windshield. The front passenger bounces off the windshield and out the door. Back seat passengers cartwheel over the front seat into the dashboard.

You feel the effects of inertia every time you are a passenger in a vehicle that stops. You feel yourself lean forward and books or magpackages fly forward. What you may not realize is that you and the books are traveling forward at approximately the same speed that the car is traveling. So in a collision at 48 kilometers per hour (30 mph), if you are not wearing a safety belt, you will hit the windshield at a speed of 48 kilometers per hour (30 mph). The force you would feel would be equal to 15 people jumping on your back.

So simply snapping on a shoulder-lap belt combination can save you a lot of pain and trouble in case of an accident. Even if you never have an accident, safety belts can save wear and tear on your body caused by bracing yourself on curves and turns. People who use safety belts regularly arrive at their destinations much less fatigued by the long drive.

Would safety belts trap you in a burning car or one which is submerged in water? To begin with, only one in every 200 accidents involves a fire or a car submerged in water. Even if you were involved in such an accident, your safety belt can prevent you from being knocked unconscious. Safety belts actually increase your ability to escape from the car.

CONCEPT II: THE FUNCTION OF SAFETY BELTS (cont)

Objectives	Activities
Students will list the benefits of wearing safety belts and demonstrate positive attitudes toward doing so.	1. Film: UFO--Unrestrained Flying Objects. 2. Distribute fact-myth statements, masters for reproduction #6-#8. After class discussion of these, have children write fact-vs-myth statements of their own. 3. Debate or discuss pros and cons of safety belts. (See list on p. 221.) Evaluate the cons. How many are based on a concern for yourself? For others? 4. Have students plan an advertising campaign to sell the use of safety belts to the general public. Include factual information, posters, TV skits, and taped radio spots. 5. Have the students research and report on the desirability and feasibility of the air bag system--an alternative to safety belts. Congress debated the question in 1975; those reports are the best source of information. Ask "Does Congress have the right to set standards for the auto manufacturers to meet?"

CONCEPT II: THE FUNCTION OF SAFETY BELTS (cont)

Objectives	Activities
	6. Debate "should safety belt use be mandatory by law?" 7. Have students research other safety innovations under consideration by automobile designers and traffic safety specialists. Discuss innovations mentioned in the story, "Year 2025", p. 223.

SAFETY BELT - FACT OR MYTH?

Listed below are facts and myths about safety belt usage. Read both carefully. Explain why you think each is factual or mythical.

A. Using a safety belt, an auto passenger is more likely to be unhurt, alert, and capable of getting out of a car quickly.

B. A seat belt is likely to trap an auto passenger in a burning or submerged automobile.

SAFETY BELT - FACT OR MYTH

Give handouts to the students. After they have read the statements, have them write an explanation indicating whether they are facts or myths. Answers are below.

"A" is a fact. Without belts, the motorists may be dazed or stunned by the crash; this would increase the time it takes to get out of the car. Therefore, the belt will speed up rather than slow down the escape process.

"B" is a myth. Fire and submersion actually occur in less than one-half of 1 percent (0.5%) of all serious accidents. (By including less serious accidents--the "bumper-crumplers"--the proportion is even smaller.)

SAFETY BELT - FACT OR MYTH?

Listed below are some facts and some myths about safety belt usage. Read both carefully, and see if you can determine the real facts. Explain why you think each statement is factual or mythical.

A. Many motorists have been "saved" by being thrown out of a car.

B. The probability of death is almost five times greater when the motorist is thrown from the automobile.

SAFETY BELT - FACT OR MYTH?

DIRECTIONS: Give handouts to the students. After reading the statements, have them write an explanation indicating whether they are facts or myths. Answers are below.

ANSWERS

A is a "myth." B is a "fact."

Additional Information

The forces in an accident are so great that a person ejected from an automobile can be flung 12 - 15 meters (40 to 50 feet) or more from the car. (One body was found 45 meters (150 feet) from the car from which it had been ejected.) Whether this distance is covered through the air, scraping along the ground, or both, it is highly likely to have serious results. In other cases, the car door is sprung, the motorist falls out, and the car rolls over and crushes him. Despite any emotional fantasies about "being thrown clear," sheer common sense--based on extensive statistics--says it is better to stay inside the car.

A station wagon carrying a family of six was struck from the rear. It ran off the road and rolled over. The mother flew out of the door and was killed when her head hit a rock. Three of the children stayed in the car; all had broken bones, but lived. The father stayed in the car and was not injured. When the police arrived, the father was frantically searching for the 18-month-old boy his wife had been holding in her lap. Half an hour later, they found the baby. Otherwise unharmed, he had drowned because he was hurled into 6 inches of water.

SAFETY BELT - FACT OR MYTH?

Listed below are some facts and some myths about safety belt usage. Read both carefully. See if you can determine the real facts and explain why you think each statement is factual or mythical.

A. If I'm just going shopping, why bother? I don't need to wear a safety belt while driving around town at low speeds.

B. More than half of the accidents causing injury or death occur at speeds less than 65 kilometers per hour (40 mmph). Three out of four accidents that cause death occur within 40 kilometers (25 miles) of home.

SAFETY BELT - FACT OR MYTH?

DIRECTIONS: Give handout to the students. Ask them to read the statements and write a statement indicating whether it is fact or myth. Answers are below.

ANSWERS

A is a "myth." B is a "fact."

Additional Information

In a study of 28,000 accident cases, fatalities of nonbelted occupants were spread over the whole speed scale, starting as low as 19 kilometers per hour (12 mph).

Speeds below 48 kilometers per hour (30 mph) accounted for 90 percent of the accidents, two-thirds of the injuries, and 54 percent of the deaths.

PROS AND CONS OF SAFETY BELT USAGE

Divide the students into small groups for discussion. Using the list provided, have each group be prepared to defend the position and answer questions about the topic they have selected.

PRO

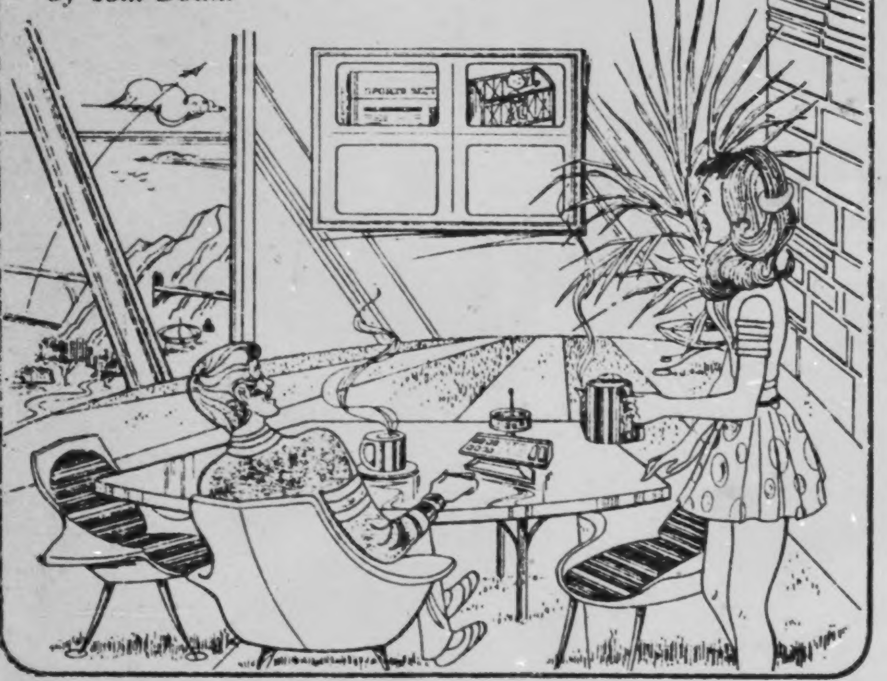
1. Safety belts are good insurance; they may save
2. Safety belts prevent being ejected from the automobile.
3. Among passengers and drivers using seat belts and shoulder harness, no deaths have been reported at speeds under 60 mph.
4. Safety belts help hold a driver in place and in control of the car.
5. Unbelted children can cause accidents.
6. Injuries caused by safety belts are slight in comparison to injuries sustained by passengers not wearing safety belts.

CON

1. Safety belts aren't comfortable.
2. Safety belts aren't manly.
3. Safety belts are too much trouble.
4. Safety belts are worn only by old people.
5. Safety belts insult the
6. Safety belts are too much trouble to put on.
7. Safety belts wrinkle my clothes.
8. Safety belts slip my mind; I forget to put them on.
9. Safety belts trap me in my cars.

2025...
A Safety Odyssey

by Tom Dodds



WHAT will the world be like some 50 years from now?

Will earth creatures, circa 2025, exist in an antiseptic, super-efficient, paradise-like environment?

Will things have progressed to a leveling-off period where the good life can't really be improved much—and future shock just a phase passed through on the way to this idyllic appointment with the 21st century?

What about accidents? Will there be any? Will there be a FAMILY SAFETY magazine? Or a National Safety Council?

Nobody knows the answers. Nostradamus didn't mention accident prevention. And Jeanne Dixon, the well-publicized seer, hasn't had much to say about it either. But from time to time, safety researchers and assorted prognosticators have speculated about what life might be like at some future point in time.

Mixing such crystal-balling with a generous helping of imagination gives this picture of how certain aspects of life might be for a typical 2025 family.

The Fred Futures live in Apartment 1442, Terraceway Gardens, Megalo City. Actually, they don't live on the fourteenth floor, because the housing manager, bowing to an ancient superstition, left out thirteenth floor numbering.

Not everything has changed.

But, for the most part, there are major differences compared with 1975.

Fred Future buttons through the morning newspaper as he sips a last cup of coffee before leaving for work. That's right—buttons through. One of the 64 channels on the Future's cable TV hookup displays the newspaper. One button turns the pages; another provides a zoom-in for an enlargement of any item Fred wants a closer look at.

The large TV screen hangs on the wall like a picture frame and it is only two inches from front to back. Like other electrical appliances in the apartment, it has no cord because there are no electrical outlets and no wiring of any kind in the building. Self-contained remotes, powered by energy from the sun, have made obsolete the shock and fire hazards normally associated with electricity.

Button, button . . .

There is little chance of any kind of fire. All building and furnishing materials are required by law to be fireproof.

A switch to another channel and punching other buttons brings into focus any room in the apartment. The Futures can look in on their sleeping child at the touch of a button—a built-in babysitter.

Absorbed in the telenewspaper, Fred lights a cigaret and forgets to blow out the match. That hasn't changed—within seconds the flame nips his thumb and forefinger.

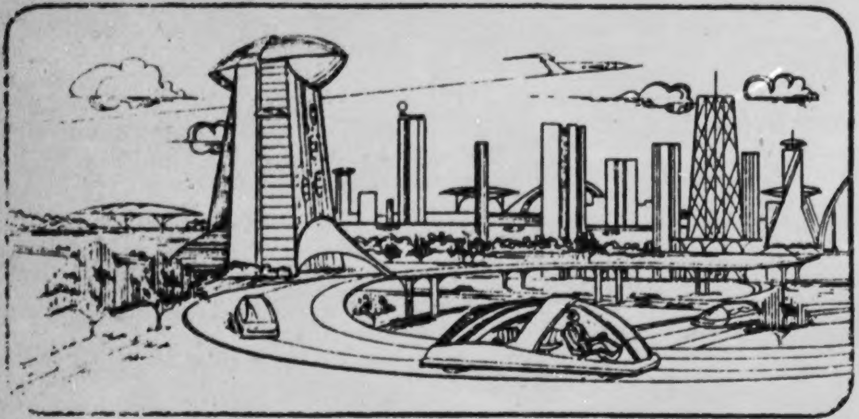
Now it's time for the drive to the central city where Fred works. He punches out his car code on the panel of numbered buttons. In a few minutes an elevator delivers his car to a courtyard pickup area. He gets into the car and checks to see that the drive control is set for manual operation. That lets Fred do most of the driving.

He has mechanical assistance, of course, from the interval sensor, which measures the distance between Fred's car and the vehicle ahead, calculates the speeds of the two vehicles, computes a safe following distance and automatically decelerates and applies the brakes of the Future car if the gap shrinks too much.

Charge it up

As he moves along, his eyes check the ammeter to make sure the power unit has been fully charged overnight. The electrically-powered ve-

Reprinted from Family Safety magazine, Winter, 1974-75.



hicle has a range of about 400 to 500 miles before recharging is necessary.

There are recharging stations everywhere. The cost is based on the minutes of recharging a driver requires, with a complete recharge taking about 20 minutes. Fred's building provides overnight charging for tenants' cars.

Now he tunes in the rear-view mirror–not really a mirror, but a TV-type screen on the dashboard. On it is displayed the scene behind picked up by the periscope system extending above the roof of the car and utilizing mirrors and cylindrical lenses.

The rear vision coverage links with the limits of Fred's peripheral vision–a big improvement over the 30 per cent view drivers got with the rear-view mirror setup 40 or 50 years ago.

The periscope looks as if it could use a cleaning (they don't do that at recharging areas any more), so Fred gets out and gives it a swipe or two. He walks over and tosses the paper towel in the suction trash pipe.

As he nears the main highway Fred has a choice between two alternatives.

He can continue to operate the car manually and enter a color-coded highway on which he can drive to his destination. But he chooses to enter the automated road where the car is picked up by a passing pallet. All he has to do is punch the key number of his destination on a small dashboard keyboard. Fred can then sit back, relax, have a cup of coffee and read if he wants to.

The car will be automatically disengaged at the proper exit, where Fred, alerted by a warning buzzer, will switch back to manual operation.

Vehicles on the pallet move along at about 60–65 miles an hour. As they near their exits, they are programmed to leave the road at the proper exit, shifted to an outside track and their speed gradually slows to about 25 miles an hour. They then move off the automated highway.

If Fred had chosen to drive manually, he would simply have followed the orange lane to his destination. At some points there are nine different colored lanes. Drivers sometimes complain that driving on these rainbow-colored lanes is a bit too eye-dazzling as well as an affront to their aesthetic sensibilities.

But traffic engineers maintain it's much easier to keep drivers informed and traffic sorted out with the color-code system.

Air cushion

Certain safety features of Fred's car are worth noting.

Instead of safety belts or air bags, passengers are protected by an air blast system similar to the air curtains that screen out cold or heat at the entrances to stores.

The air system has been adapted and designed to be activated by sufficient impact, and it instantly surrounds both front and rear seats with curtains of pressurized air. This keeps the driver and any passengers in place, as well as retarding the force of any flying object so that its striking power is harmless.

The same air system that packages the occupants of a vehicle also eliminates the need for windshield wipers by shielding the windshield from water, snow, ice and mud.

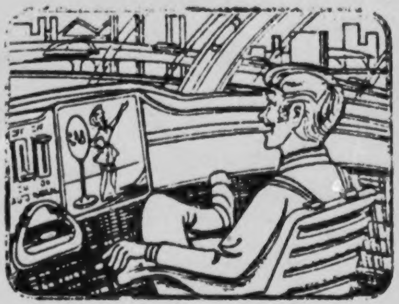
Window glass stretches instead of breaking. A steel ball dropped from a second-story window directly on a windshield will simply bounce off, leaving a temporary impression on the glass, which will revert to its normal contours within seconds.

Everything in the interior of the car has enough resilience to reduce dramatically the likelihood of any contact injury in the so-called second collision.

Night-driving glare is no problem. Headlights have polarized lenses.

Tires are puncture-proof and almost last forever. There are anti-skid and anti-brake-failure devices, too.

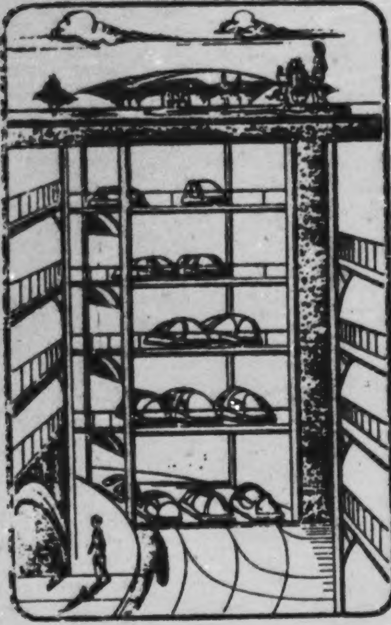
A small television screen on the dashboard, turned on by touching a button with the foot, shows what's out of sight on the other side of a hill or around a curve or at any hazardous location, such as a blind corner, where vision is restricted.



Cameras mounted at such critical spots pick up and transmit the scene to any driver who is tuned in.

As the buzzer warns Fred of his approaching exit from the automated highway, he takes over operation of the car again.

As he leaves the exit lane, lulled by his automated trip, he forgets for a fleeting moment that the car is no longer on automatic drive. So, there's no instant reaction when a jaywalker suddenly pops up in his path. But Fred snaps back, hits the brakes hard and swerves sharply to avoid the errant pedestrian, just as in the old days.



When Fred arrives at work he uses under-street parking. Several levels below ground, subway parking frees valuable land, once used for parking lots and garages, for more important projects.

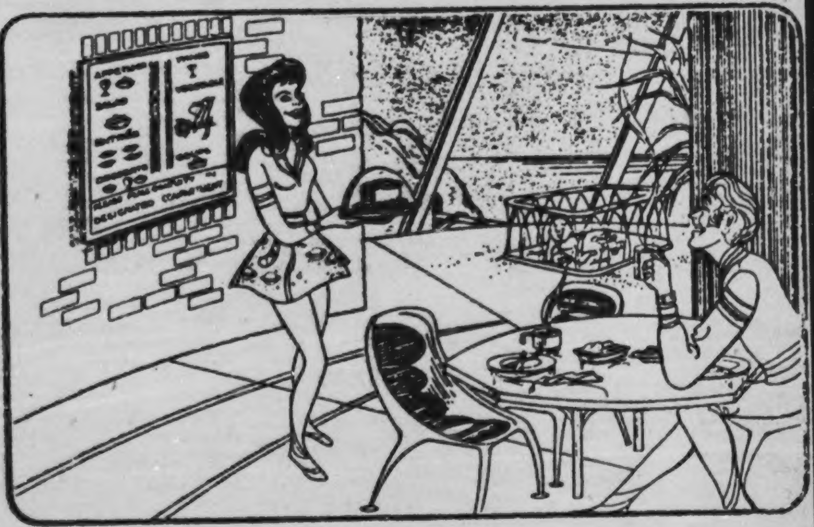
Meanwhile, back home . . .

Solar comfort

It's a rather cold day, but Fran Future is warm and comfortable.

On the slanted roof of the apartment building are cadmium sulfide panels. The panels face the sun all day because the building itself rotates about 180 degrees so that the solar panels will absorb the maximum energy from the sun.

The solar roof collectors absorb tremendous heat, often reaching temperatures of several hundred degrees.



Air, blown along the underside of the collectors, picks up the heat and, in addition to providing warmth for the building, carries much of it to a tank of salt that melts at 120 degrees Fahrenheit. The molten salt acts as a heat-storage reservoir that continues to keep the building warm during sunless periods.

The heating process can be reversed and the salt "frozen" and used like ice cubes to store cold for summer cooling. People look upon stoves, furnaces and other fossil-fueled heating systems as curiosities of a bygone era.

No more snow shovels

Outside, a light snow is falling, but there'll be no shoveling chores to precipitate heart attacks or strained muscles. Sidewalks, roads and driveways are coated with a special material that melts the falling snow on contact and prevents ice from forming.

Obviously, snow tires and tire chains long have been obsolete, and ice-free surfaces eliminate a major source of injury from falls. The snow blower has become a museum piece, along with its hazards.

Stunted grass

During warm months when the lush green grass is flourishing, the sound of lawnmowers is never heard. A special strain of grass now grows only to a height of one inch. The lawnmower blade has claimed its last toe and finger.

The floors of the apartment have a permanent wax finish that is shiny but not slippery, thereby eliminating another source of falls.

Fran is busy straightening up the house—shod in sandals as usual—when her toe has a head-on collision with the leg of a heavyweight chair. That hurts just as it used to.

Eat out, in

When Fred comes home they decide to eat out, in. That is, they turn on TV to one of the restaurant channels, watch the pictorial menu display, and punch buttons for their orders. The food will arrive soon, warm, and in their oven via the restaurant delivery system and the dumb waiter device in the building.

While they wait for the bell that will signal the arrival of their meal, they continue to watch TV.

A public service announcement comes on. Sponsored by the National Safety Council, it reminds everyone to "Push the safety button in your mind. Enjoy life."

Fran Future winces slightly as she bumps her bruised toe against a table leg.

"You'd think," she observes, "that with all the built-in protection we've got these days that outfit would be out of business."

Maybe—but even in 2025, people probably will find a way to goof off. ☐

Note: All the seemingly fanciful happenings in this feature are based on scientific projections of future developments and life styles.

CONCEPT III: PASSENGER RESPONSIBILITIES

To be a safe, courteous passenger you must carry out these responsibilities:

1. Remain seated; wear safety belts.
2. Don't distract the driver with excessive conversation.
3. Avoid distractions such as loud noises, laughter, and screaming which can cause the driver to have an accident.
4. Always enter and leave car on the curb side; if it is absolutely necessary to use the street side, look and listen for traffic.
5. Always lock car doors, and avoid playing with door handles and lock buttons; if the door opens, a child may be thrown out by a sudden stop or collision.
6. Keep fingers, hands, and heads inside the car.
7. Put books and packages on the rear floor.

Other responsibilities include ways to keep small children safe in a car:

1. Do not let them stand on the front floor.
2. Do not let them sit on driver's lap.
3. Do not let them lie on back deck or stand on the seat.
4. Use harness safety belts or specially designed children's safety car seats.

CONCEPT III: PASSENGER RESPONSIBILITIES (cont)

Objectives	Activities
Students will demonstrate courteous and helpful behavior as passengers.	1. Have students list five to eight ways that a passenger can aid the driver and hinder the driver, 2. Have students collect newspaper clippings about accidents. Each can select a clipping and write a paragraph indicating the passenger's probable role in the accident. 3. Have students discuss how the accident could have been avoided. Stimulate the evaluation with the statement: no accident occurs as a result of a single cause. 4. Have small groups discuss the paragraphs and evaluations referred to in 2 and 3 and have a spokesman from each group report the findings to the class. 5. Have students classify (severity, frequency, etc.) improper passenger behavior utilizing bar graphs. 6. Have students list safety procedures that are beneficial to the well-being and safety of the driver and the passenger.

CONCEPT III: PASSENGER RESPONSIBILITIES (cont)

Objectives	Activities
	7. Have students survey friends and small children for safe passenger games. List these games along with rules and distribute them to the class. 8. Have students write skits about benefits of proper behavior and hazards of improper passenger behavior.

TRIP PREPARATION

UNIT OUTLINE

Concepts	Goals
I. Map Reading Skills	Students will be able to interpret a road map.
II. Planning a Trip	Students will know the factors in planning a safe, pleasant trip.
III. Emergency Procedures	Students will know the procedure to use in case an accident is encountered on the road. (This concept can be tied in with the first aid unit in health.)

The ability to read and interpret maps can increase the pleasure and safety of your trip. Some important map-reading skills are:

1. The ability to distinguish between roadway types. The map legend illustrates symbols used and roadway types marked; these may differ slightly from map to map. On the whole, the roadway types are:
   a. Multilane controlled access - any road with at least two lanes of travel in each direction with a minimum number of exits and entrances. These are generally the fastest, safest routes.
   b. Other multilane divided - roads with opposing traffic separated by medians and likely to be faster and safer controlled accesses; increased numbers of intersections reduce safety.
   c. U.S. and principal routes - likely to be two-lane roads, well-maintained; expect a fair amount of traffic.
   d. Other principal roads, other roads - road condition uncertain; expect more traffic on a "principal" route; keep alert to avoid accidents. Be able to tell if a road is paved, unpaved, or under construction.
2. Knowing the roadway numbering systems. Check the legend for the systems marking interstates, U.S. routes, state-maintained routes, county roads, etc.
3. The ability to locate points of interest; the map legend shows symbols for such things as ferries, campsites, State or National parks, rest areas, information centers.
4. The ability to estimate distances between towns and junctions; mileage is usually shown in two ways--by black numbers indicating short distances and by red numbers (between red asterisks) indicating long distances.
5. The ability to use mileage approximation tables.
6. The ability to locate towns using the index. It lists most towns and counties and indicates the quadrant of the map in which they are located; the State is divided into many squares or quadrants. Horizontal rows are lettered, and vertical rows are numbered. To locate a town, find it and its letter and number in the index; then locate the letter and the numbered rows on the map. The quadrant where these rows intersect will contain the town you wish to locate.

CONCEPT I: MAP READING SKILLS (cont)

Objective	Activities
1. Students will demonstrate the six basic map reading skills.	1. Have each student obtain a map of North Carolina, locate the legend, and go over the symbols used. Compare various maps. Discuss types of roadways. Locate your town or area on the map and identify nearby routes. Relate roadway types to roads your students are familiar with. Use master for reproduction, Test Your Map Reading Skills (p.234) as an exercise sheet. Make up other worksheets using the same questions but different towns. 2. Divide the class into small groups. Have each group plan a trip across North Carolina, paying special attention to the types of roadways on which they would be travelling. Have them present their plans to the class; describe the trip, the types of roadways, and the hazards they may encounter; and tell why they chose that route. 3. Ask your local AAA club if they have a trip-tik planner. Invite the planner to explain to the class how a trip-tik is planned.

TEST YOUR MAP-READING SKILLS

1. Find Kinston on the map. In which quadrant is it located?

2. Find Asheboro on the map. In which quadrant is it located?

3. How far is Kinston from Asheboro? (Use the mileage approximation table.)

4. If you were planning a trip from Kinston to Asheboro, what would be the quickest, safest route? Why?

5. Suppose you wanted to stop off in Fayetteville to visit a friend before going on to Asheboro. What route would you take? List each route, the point of junction, the type of roadway, and the number of miles you would travel on each route. Example: U.S. 70 - Kinston to 195 - multilane highway primarily - 48 miles.

6. Explain why you chose the route you did. Did you consider the distances, the ease of travel, and the safety of the route?

7. Are there any points of interest on or near your route? Locate:
   a. any rest areas

   b. any airports (What kind?)

   c. the N.C. zoo

   d. any State or National parks

   e. county seats

ANSWER SHEET

TEST YOUR MAP-READING SKILLS

1. Find Kinston on the map. In which quadrant is it located? *(K-3)*
2. Find Asheboro on the map. In which quadrant is it located? *(G-2)*
3. How far is Kinston from Asheboro? (Use the mileage approximation table.) *(145 miles)*
4. If you were planning a trip from Kinston to Asheboro, what would be the quickest, safest route? *(U.S. 70 to Raleigh, then U.S. 64 to Asheboro)* Why? *(Most of the route is multilane highway and it appears to be the shortest route.)*
5. Suppose you wanted to stop off in Fayetteville to visit a friend before going on to Asheboro. What route would you take? List each route, the point of junction, the type of roadway, and the number of miles you would travel on each route. Example: U.S. 70 - Kinston to 195 - multilane highway primarily - or 48 miles. *(Answers will vary)*
6. Explain why you chose the route you did. Did you consider the distances, the ease of travel, and the safety of the route?
7. Are there any points of interest on or near your route? Locate:
   a. any rest areas *(on I-95 near Wade exit)*
   b. any airports (What kind?) *(scheduled and military at Goldsboro and near Fayetteville)*
   c. the N.C. zoo *(near Asheboro)*
   d. any State or National parks *(Uwharrie National Park near Asheboro)*
   e. county seats *(Kinston, Goldsboro, Fayetteville, and Asheboro; perhaps others depending on the route)*

Note: These answers correspond to the official North Carolina map issued by the State. Answers may vary if another type of map is used.

CONCEPT II: PLANNING A TRIP

The following are factors to be considered in planning a long-distance automobile trip.

1. Plan your trip in advance but without a rigid schedule. Attempting to meet a rigid schedule often leads to unsafe time-distance decisions.
2. Expect to average a speed slower than the maximum highway limit. Gas and rest stops, towns and cities, and sight-seeing lessen the average speed on long trips.
3. Plan ahead daily. Start early in the morning before roads become crowded; stop before nightfall--a high accident period.
4. In the evening, study a map for the next day's travel.
5. Do not try to cover too much distance daily. Fatigued drivers are more likely to make mistakes. 000 to 000 kilometers (300 to 500 miles) is a full day of travel.
6. Do not try to average a certain number of kilometers per hour (mph's). This tends to encourage drivers to maintain speed when a speed reduction may be necessary.
7. Plan games and activities to occupy small children during the trip. All passengers should avoid distracting the driver.
8. A front seat passenger should serve as a navigator and thus read the map and road signs to assist the driver. A driver should never attempt to read a map and drive at the same time.
9. For the most efficient travel, avoid congested routes through cities. If you can't avoid cities or other bottlenecks, plan to avoid rush hour traffic.
10. Have a mechanic inspect your car before the trip to make sure it is in top running condition. (Motor tuneup, tire tread and pressure, V-belts on motor pulleys, etc.)

11 Pack emergency equipment. If something unpleasant happens, be prepared to help yourself and others who may have neglected to pack important equipment.

12. Just before starting out, recheck inflation of tires, be sure windows are clean, and be sure the driver's vision is not blocked.

CONCEPT II: PLANNING A TRIP (cont)

Objectives	Activities
1. Students will list the preparations necessary to insure a pleasant, safe trip.	1. Have students prepare a checklist to be used before starting a trip. (Refer to the worksheet on map-reading skills.) How long do you expect the trip to take? What hazards or hassles can you avoid by planning? 2. Have students list ways the passenger can aid the driver. Have them list activities that reduce passenger boredom and evaluate the safety of each activity. What are the dangers of driver fatigue? Of passenger fatigue or boredom? 3. Have students discuss the significance of planning with emphasis on lodging accommodations, purchase of extras, allocation of time for sightseeing? Can planning save time and money?
2. Students will list the safety equipment which should be carried on a trip.	4. Taking right equipment can make a trip easier. It can save time and harrassments if you are equipped to help other travelers. Discuss the checklist for emergency equipment, p. 239. Have students explore the benefits of equipment. Some benefits are monetary, some convenient, some help minimize hazards of emergency stops. For example, have

Objectives	Activities
	students compare the costs of changing their own tires (i.e., the cost of jack, lug wrench, and wheel blocks) to that of having a gas station send out a service or tow truck. Do the same for jumper cables. How many times do you have to use them before they pay for themselves?

CHECKLIST FOR EMERGENCY EQUIPMENT

1. Jack (to raise car for tire change)
2. Lug wrench (to loosen lugs (bolts) which hold tire to axle)
3. Wheel blocks (bricks or pieces of wood to insure your car will be stopped on inclines)
4. Flashlight (with extra batteries and bulbs)
5. First aid kit
6. Flares (to signal if you must stop for repairs or you are in an accident)
7. Tool kit (at least a screwdriver and a wrench)
8. Jumper cables (to start a car's dead battery)
9. Fire extinguisher
10. Spare fuses (in case your light fail)
11. Towel, rags, or paper towels
12. Pencil and notebook
13. Window scraper

For winter driving in colder regions:

- a. Ice scraper
- b. Deicing spray
- c. Snow chains
- d. Bag of cinders or sand (to create traction on ice)
- e. Shovel
- f. Long rope or chain
- g. Blanket, burlap bags, or carpet piece (to create traction in the snow)

CONCEPT III: EMERGENCY PROCEDURES

The following precautions should be taken upon sighting an accident attended by police/emergency vehicles:

1. Drive slowly and prepare to stop.
2. Watch for unexpected movements of vehicles or pedestrians.
3. Look for someone directing traffic through the emergency area.

If you witness or are the first to arrive at an accident:

1. Park in a safe location off the roadway and leave room for traffic and emergency vehicles.
2. If accident victims have sustained injuries summon professional help from a rescue squad or ambulance service as soon as possible, but do not leave a victim who has stopped breathing or is bleeding severely. Send someone else for help and administer first aid treatment *if you are qualified*. Move an injured person *only when there is immediate threat of additional injury*.
3. To summon help:
    a. Dial the operator and state that this is an emergency.
    b. Give the location of accident.
    c. Relate types of injuries sustained, if possible; this information may help the rescue squad prepare on the way to the accident.
4. Remain at the scene until help arrives. Injured people will be frightened and in pain. Stay by them and reassure them.
5. Post signals or flares to warn traffic.
6. Provide information to the police if you witnessed the crash.

CONCEPT III: EMERGENCY PROCEDURES (cont)

Objectives	Activities
Students will know the procedures to be used if they arrive at the scene of an accident.	1. Discuss emergency procedures with the class. Ask if the students have had any personal experiences. Have students role-play to establish the proper steps to take in an accident. Note: First aid procedures should be integrated with this lesson. If first aid is not taught at your school, see page 242 for an outline of treatments.

EMERGENCY FIRST AID TREATMENT

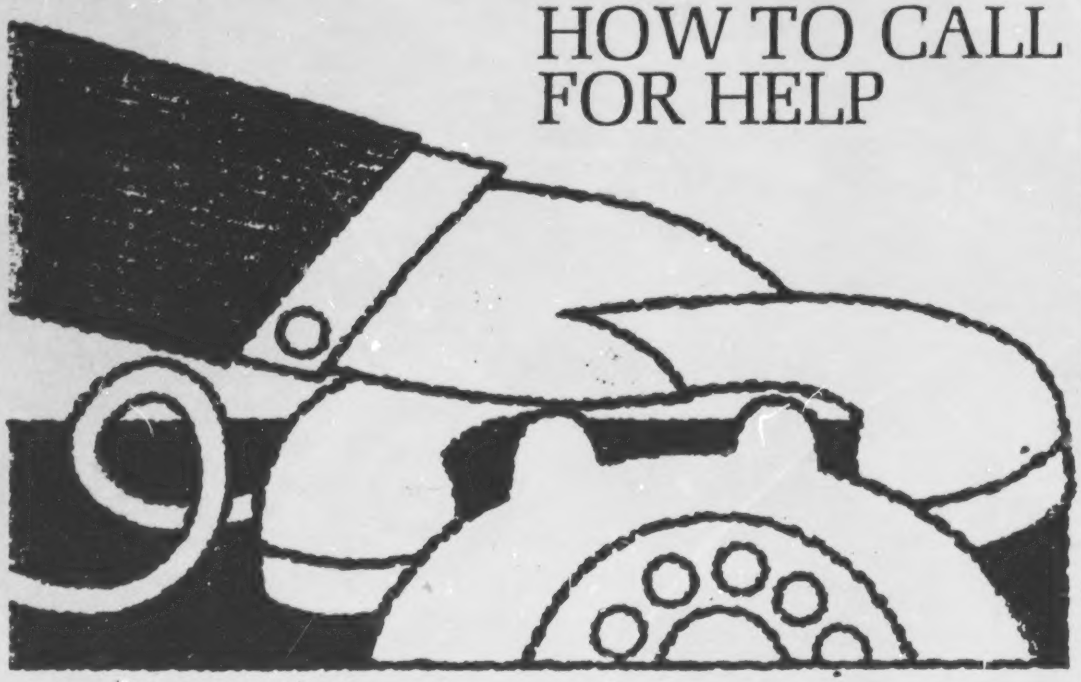
If you are qualified, administer first aid treatment. If accident victims are bleeding severely, have stopped breathing, or exhibit symptoms of shock, use these procedures.

1. Severe Bleeding. A victim bleeding severely should lie down to prevent fainting. To stop bleeding, press a sterile gauze dressing (or the cleanest cloth at hand) firmly over the wound. If the dressing becomes saturated with blood, put a fresh dressing directly over the saturated one and continue pressure. If direct pressure doesn't work, pressure both above and below the wound may. For an arm or leg, try shutting off circulation in the artery supplying blood by pressing firmly against it with your hand or fingers, but do not attempt arterial pressure for wounds of the head, neck, or torso.
2. Lack of Oxygen. Mouth-to-mouth resuscitation is the best way to get oxygen into a person who is not breathing.
    a. Lay victim on his back; wipe any foreign matter out of his mouth with your finger; place one hand under his neck; lift up his neck and partially tilt the head back.
    b. Pull the chin upward.
    c. Place your mouth firmly over his mouth; pinch his nostrils shut; blow hard enough to make his chest rise. If the victim is a small child, place your mouth over his nose and mouth when blowing.
    d. Remove your mouth and listen for the sound of exhaled air. Repeat the blowing. If there is no air exchange, recheck the victim's head and jaw position. His tongue, or something else, may be blocking the air passage. Try again.
    e. If you still get no air exchange, turn the victim on his side and slap him sharply several times between the shoulder blades to dislodge any foreign matter from the throat. If the victim is a child, hang him momentarily head down over your arm or lap and slap him sharply between the shoulder blades. Wipe his mouth clear.
    f. Resume. Blow one vigorous breath every 5 seconds. For small children, blow shallow breaths every 3 seconds. Don't give up until help arrives.

3. Shock. In any serious injury, always expect shock and act to lessen it. The symptoms are:
   a. Skin - pale, cold, clammy
   b. Pulse - rapid
   c. Breathing - shallow, rapid, or irregular
   d. Person - frightened, restless, apprehensive

   To treat shock:
   a. Keep victim lying down with head lower than feet, except when victim has sustained head or chest injuries or difficulty breathing; in such cases, the head and shoulders should be raised so that the head is 10 inches higher than the feet.
   b. Loosen the clothing.
   c. Cover the victim to keep him warm.
   d. Reassure and comfort him.

HOW TO CALL FOR HELP



A CANDY FACTORY employee falls into a vat of hot chocolate and yells: "Fire!"

After he's saved, one of his rescuers asks: "Why did you yell 'Fire'?"

His reply: "Would you have come if I yelled 'Chocolate'?"

That joke (courtesy of the Smothers Brothers) proves there's an art to calling for help.

Do you really know how to make an emergency phone call? A lot of people don't —no joke!

In an emergency, you obviously waste precious time fumbling through a telephone directory. So be prepared by posting these numbers near your phone:

Fire department; police department; local poison control center if there is one; office and home numbers of your family doctor; hospital; pharmacist; ambulance service; taxi company; gas and electric companies; and one or more reliable neighbors.

When you make an emergency phone call, here are four points you should cover clearly and quickly:

1. **Tell where it happened.** Give the street number, the name of the street and, if you live in an apartment, the floor and number of your apartment.

Then repeat them. A brief description of the house or apartment building will also be helpful, especially at night.

2. **Tell what has happened.** Is your home on fire? Is someone bleeding badly? Has someone had a heart attack? Has someone accidentally swallowed a poison or drug overdose?

3. **Tell who you are.** That's important when the emergency isn't obvious from the outside, especially if a multi-family dwelling is involved. A neighbor, asked for directions, will be more likely to recognize your name than your house number.

4. **Tell what kind of help is needed.** Explain what kind of equipment you think will be necessary.

A lot to remember? No—it takes about 10 seconds.

After you cover those important points, don't hang up immediately. Give the person you're talking to a chance to ask questions.

What if it's at night and the lights won't work?

All you have to do is dial "O" for "Operator." Just feel for the finger hole right below the finger-stop, then pull the dial all the way around in the usual manner. If you have a pushbutton phone, simply feel for the middle-button in the bottom row. (Smart idea: practice with your eyes closed.)

Help in an emergency is as close as the nearest telephone—if you know how to give vital information quickly and clearly.

So make sure you and everyone else in your home knows how—including children and baby sitters!

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CRASH--THEN WHAT?

MARINE CORPS folklore: One hundred Marines volunteer for a very dangerous mission and are told that only one of them will return.

Each Marine then shakes his head sadly and thinks to himself: "Those poor guys."

Although fictitious, the story underscores a somewhat disturbing fact about human nature. Many of us are addicted to thinking: "It won't happen to me."

But traffic accidents *will* happen to one out of four "me's" in the next year. In view of that statistical estimate, thinking the unthinkable therefore becomes a wise and possibly life-saving precaution.

If, despite your best defensive-driving efforts, you are involved in an auto crash, there are some things you should and should not do to keep matters from getting worse--matters of life and death.

Get your car to the curb or shoulder of the road if you can, so that you won't block traffic or emergency vehicles. The law allows you to move vehicles if they are a hazard.

Turn off the ignition. If another car is involved, see that its ignition is also turned off. And instruct passengers and bystanders not to smoke--because of the danger of leaking gasoline.

The danger of a second collision should be one of your immediate concerns. The danger of a second collision is so great it frightens even veteran tow-truck operators.

If the wreck is where other cars may crash into it, someone should protect the accident scene by placing flares to warn approaching motorists. Set one flare 300 feet back. If there is no sign of leaking gasoline, set another flare 10 feet behind the wreck. (It's always a good idea to carry several flares and a flashlight in your car.)

If you don't have flares or some other signal, someone should flag down approaching cars from a safe distance.

Check for injuries. Do *not* move an injured person unless there's an obvious risk of fire or of being struck by another car.

If it's necessary to move an injured person, do *not* allow his body

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to jackknife, twist or roll, which could compound an already serious injury.

To move the victim, carefully slide a blanket or coat under him. Then slowly pull him head or feet first to a safe place.

Try to determine the extent of injury. Shock is the most common result of traffic accidents. To prevent it, keep the victim warm, elevate the feet slightly and loosen tight-fitting clothing.

But unless you're a qualified first aider, here's a good general rule to follow: the less you do to the injured, the better off they'll be--which is a sound argument for taking a first-aid course or at least mastering a good first-aid book; the Red Cross offers both.

If you know about first aid, you'll naturally check for air blockage and arterial bleeding--the other primary threats to life, along with shock.

When reporting an accident over the phone, speak clearly and distinctly and, if you can, give the exact location and street name or number, plus any nearby intersections and other landmarks.

It's equally important for police to know the number of accident victims--first, so enough ambulances and rescue vehicles can be dispatched; second, so that no victims thrown out of a car are overlooked.

Stay on the phone until the person on the other end is satisfied he knows precisely where the accident is. Don't call and then hang up in a panic only to realize too late that you gave wrong or incomplete information.

Finally, while waiting for the ambulance to arrive, make the injured as comfortable as possible. Keep calm and reassure them--which is often half the battle. As one California Highway Patrol spokesman put it: "A calm tone is more reassuring than an ominous 'It looks pretty bad.'"

Hopefully it will never happen to you. But thinking about the unthinkable--before it *might* happen--is mighty good safety insurance.

Think about it.

TRAFFIC SIGNS, SIGNALS, AND MARKINGS

CONCEPT: TRAFFIC SIGNS, SIGNALS, AND MARKINGS

As of 1975 a new system of traffic signs, signals, and highway markings will replace many of the old ones across the country. The new system, characterized by simplicity and uniformity, has colors, shapes, and symbols easily recognized and understood by all drivers, including those who do not speak the native language.

Colors in the new system have specific purposes:

1. Red--prohibitive or restrictive message.
2. Orange--construction and maintenance warning.
3. Yellow--general hazard warning.
4. Green--direction and distance guide.
5. Blue--rest area or general service.
6. Brown--national parks or recreational area.
7. Black and white--speed and direction regulation.
8. Purple, light blue, coral, strong yellow--reserved for future use.

Standardized shapes in the new system include:

9. Octagon with red background--one meaning: STOP
10. Triangle with one point downward and red background--means YIELD
11. Pentagon with point up is yellow--warns of nearby school
12. Pennant--means no passing zone
13. Diamond--indicates potential hazards
14. Circle--warns of R.R. crossing
15. Rectangle--regulates traffic
16. Trapezoid--indicates recreational areas.

In the new system, symbols are used instead of words on most signs. Symbols provide instant communication. Foreigners can understand them even if their knowledge of the English language is poor. The two basic symbols are:

1. Red circle with a diagonal line through it, means NO and is used with other symbols; for example combined with a picture of a truck, the symbol means NO TRUCKS.
2. Arrow and island indicates direction of traffic flow around highway dividers.

The two basic pavement markings used to supplement traffic signs are:

1. Longitudinal is used to delineate traffic lanes.
2. Transverse is run across the roadway to direct pedestrian traffic.

Three major colors are:

1. Yellow delineates traffic flowing in opposite

directions: keep to the right of broken lines; broken lines are permissive and solid lines are restrictive.

2. White delineates traffic flowing in the same direction; also used for crosswalks and for words and symbols.
3. Red delineates roadways not to be used by the driver who can see the markings.

Major changes implemented by the new system are yellow lines divide two-way traffic and white lines divide same-way traffic.

SUBCONCEPT: TRAFFIC SIGNS, SIGNALS, AND MARKINGS (cont)

Objectives	Activities
Students will demonstrate knowledge of the significance of highway signs, signals, and markings.	1. Distribute masters #11-15 (pp. 254 - 262), as worksheets, and have each student label each. 2. Show filmstrip Signs, Signals, and Markings and administer the accompanying comprehension tests. 3. Discuss advantages of a uniform system of shapes, colors, and symbols for traffic signs and markings over the old system which relied more heavily on written messages. 4. Have students prepare reports for oral presentation on the following: a. Shapes and colors. b. Regulatory signs. c. Information signs. d. Warning signs. e. Pavement markings as they relate to traffic. 5. Have students make signs for school use in proper shapes and colors to coordinate traffic from class to class. (Industrial technology classes may make signs; art classes may color them.)

Objectives	Activities
	6. Form small groups to discuss purposes and rules as they apply to: a. Solid red, yellow, and green lights. b. Flashing red light at intersections and R.R. crossings. c. Flashing yellow light. d. Green arrow and yellow arrow signals. e. Lane signals. 7. Have each group list two or three probable consequences of "running" a yellow light. Discuss the importance of stopping instead of speeding up to get into the intersection before the light turns red. (Most accidents at intersections occur during the first seconds of a red or green light.) 8. Give each student a copy of the pamphlet showing N.C. signs, signals, and markings. Have each make a Bingo card by cutting the signs out and arranging them at random on a grid. Cut out a full set and put in a box. Have the Bingo caller draw from the box and give the meaning of the

SUBCONCEPT: TRAFFIC SIGNS, SIGNALS, AND MARKINGS (cont)

Objectives	Activities
	sign. Students must identify the signs correctly to win. 9. Ask students how to read a traffic sign. Some--like STOP and YIELD--must be read at a glance. Others--turns, curves, traffic flow indicators--must be read from bottom to top. Most directional signs must be read left to right or right to left according to the arrows. Experiment with the signs. Helping students become aware of how they use their eyes will help them as they start driving to quickly comprehend signs, and to scan the traffic scene.

Traffic Signs

Directions: Identify what each of these traffic signs means.

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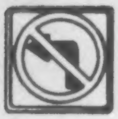

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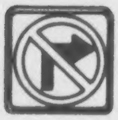

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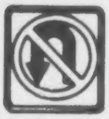

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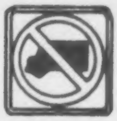

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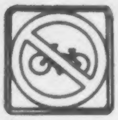

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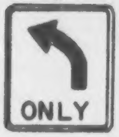

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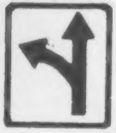

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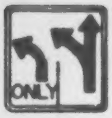

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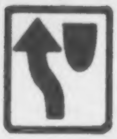

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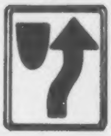

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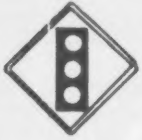

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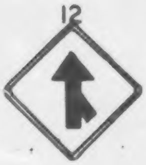

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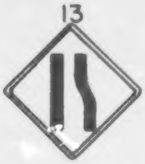

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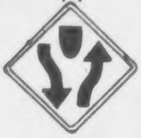

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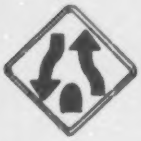

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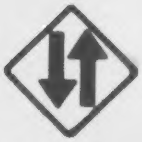

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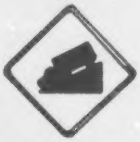

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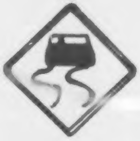

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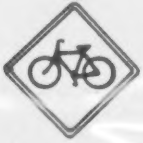

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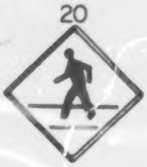

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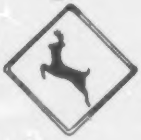

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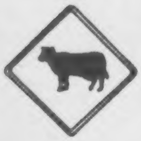

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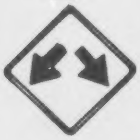

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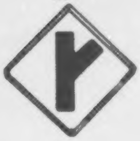

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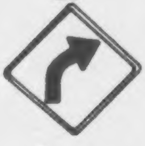

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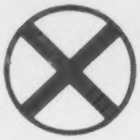

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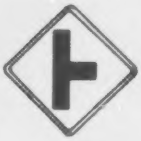

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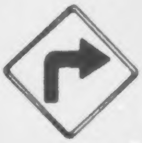

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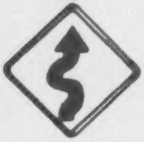

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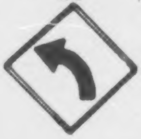

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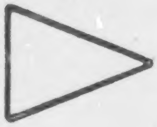

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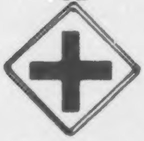


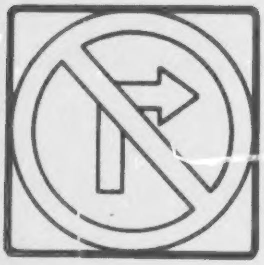
Answer Sheet
Traffic Signs

LABELS FOR BLANK SIGN SHAPES

1. No left turn
2. No right turn
3. No U-turn
4. No trucks
5. No bikes
6. Left turn only
7. Thru-left lane
8. Double left turns
9. Keep left
10. Keep right
11. Signal ahead
12. Merging traffic
13. Lane drop
14. Divided highway
15. Divided highway ends
16. 2-way traffic
17. Hill Hill
18. Slippery when wet
19. Bike crossing
20. Pedestrian crossing
21. Deer crossing
22. Cattle crossing
23. Traffic moves to either side
24. Side road
25. Right curve
26. Railroad
27. Intersection (side road)
28. Right turn
29. Winding road
30. Left curve
31. No passing zone
32. Crossroad

Traffic Signs and Markings

Directions: Write the meaning of each sign on the line below it.



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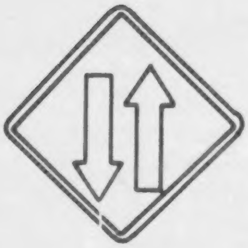

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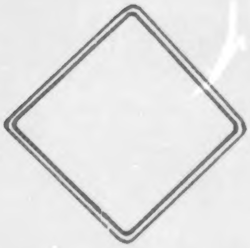

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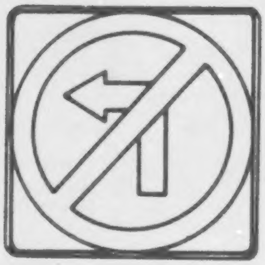

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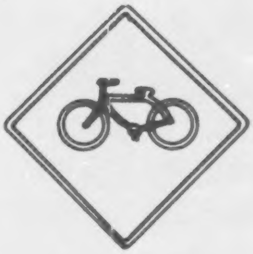

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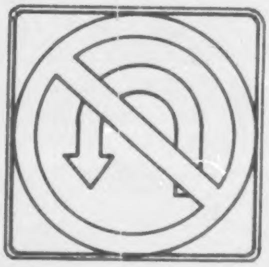

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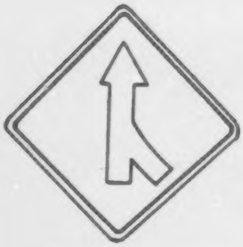

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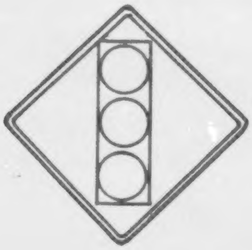

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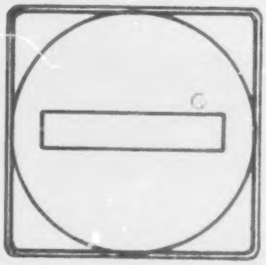

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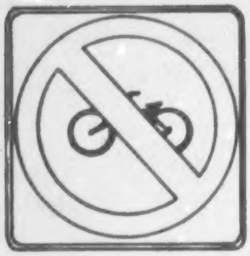
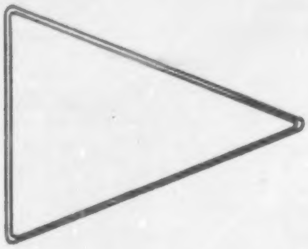
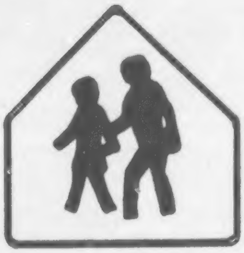
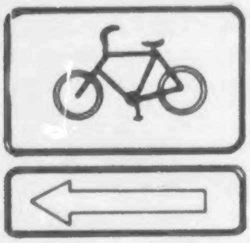
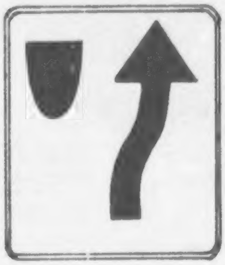
Traffic Signs and Markings, cont'd.

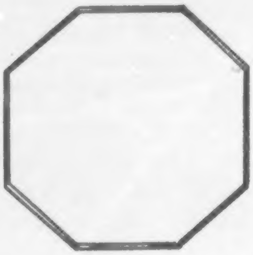


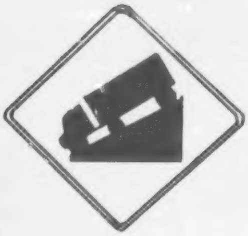


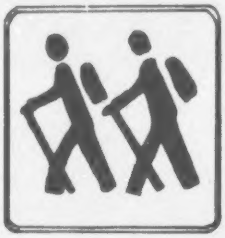


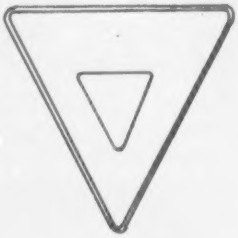


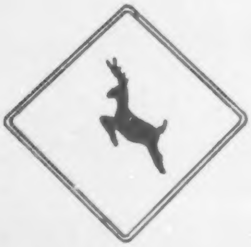


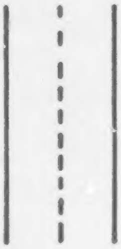




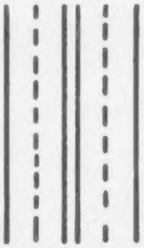








What color is the broken line?

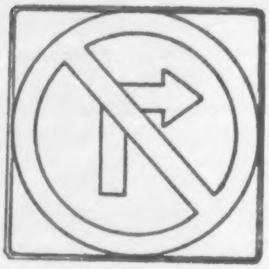


What color is the broken line?

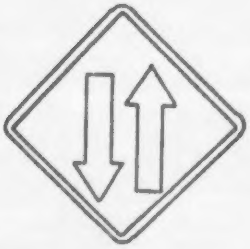
ANSWER SHEET

Traffic Signs and Markings

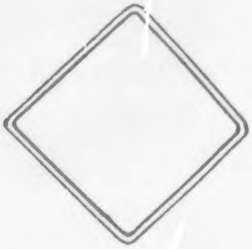
Directions: Write the meaning of each sign on the line below it.



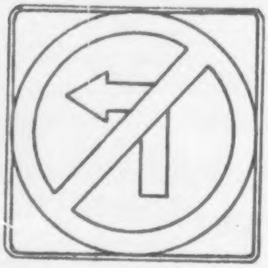
No right turn



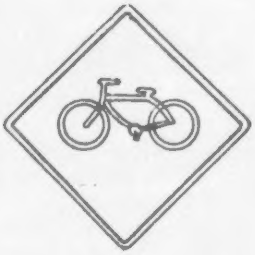
Two-way traffic



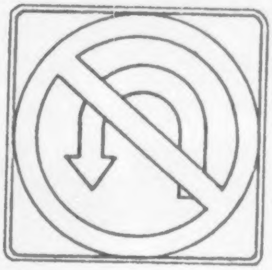
Warning



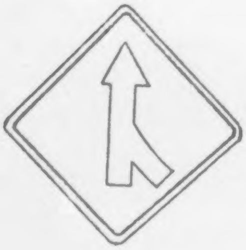
No left turn



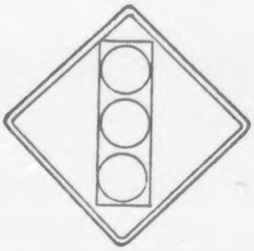
Bicycle Crossing



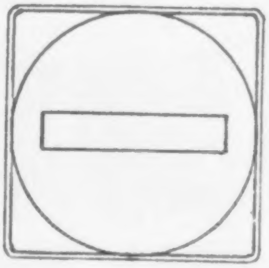
No U-turn



Merging traffic



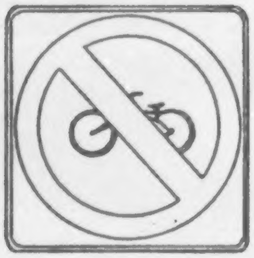
Traffic Signal Ahead



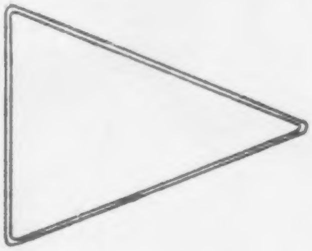
Do not enter

ANSWER SHEET

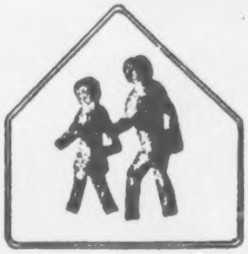
Traffic Signs and Markings, cont'd.



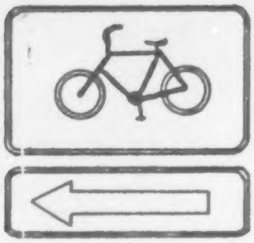
No Bicycles



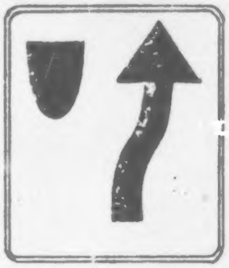
No Passing



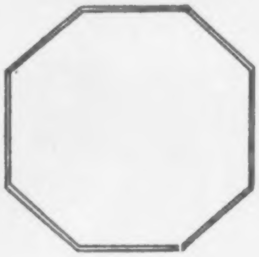
School Ahead



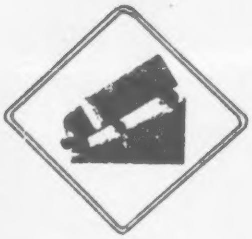
Bicycle Route



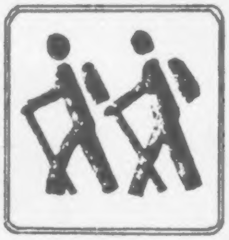
Keep Right



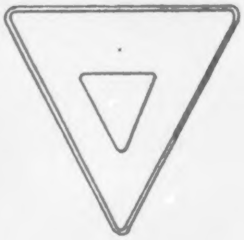
Stop



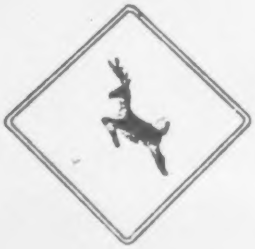
Hill



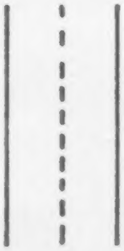
Hiking Trail



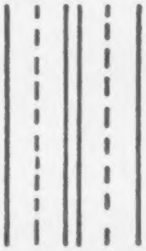
Yield



Deer Crossing



What color is
the broken line?
Yellow

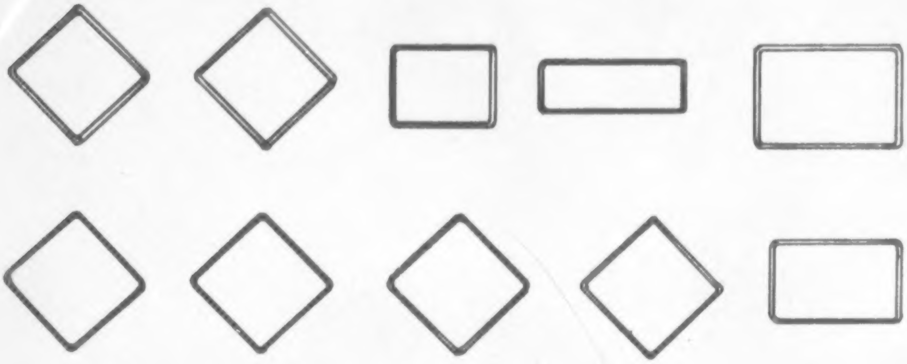


What color is
the broken line?
White

Special Signs/Special Messages

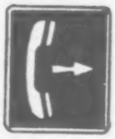
Construction Signs: Color ____________

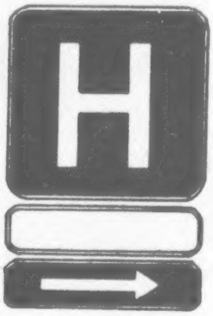
Mark the message you would expect on each:

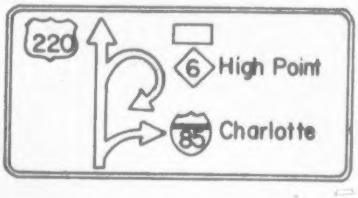


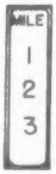
Informational Signs:

What does each of the following tell you?

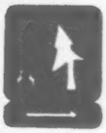




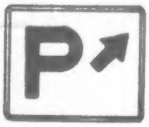

220
6
High Point
85
Charlotte

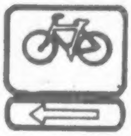


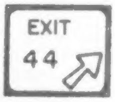
____________ ____________________ _________



____







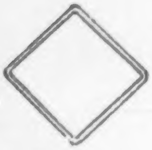
______________ __________ __________ __________

Answer Sheet

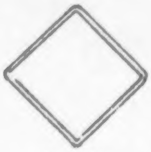
Special Signs/Special Messages

Construction Signs: Color *Orange*

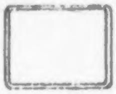
Mark the message you would expect on each:



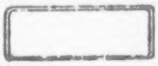
Road construction



Detour

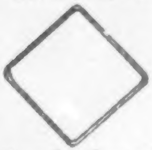


Detour

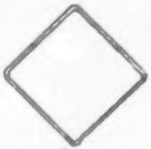


Detour

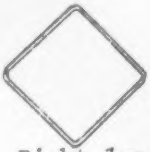
Road closed (white)



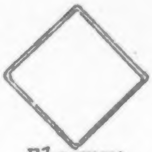
Road closed



One-lane road



Right lane closed

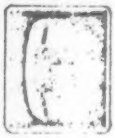


Flagman

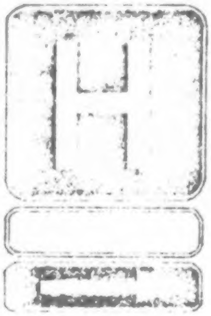
Road construction next ___ miles

Informational Signs:

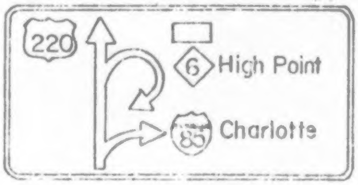
What does each of the following tell you?



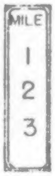
Telephone



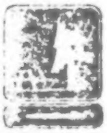
Hospital



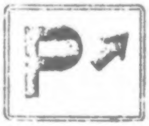
directional information



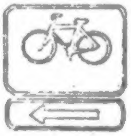
mileage



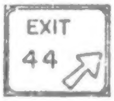
Picnic area



Parking



Bike route



Exit ahead

TRAFFIC SIGNS, COLORS, SHAPES, AND SYMBOLS

Name ______________________________

1. Give two examples of signs that are always black and white? ______________ What is their usual shape? __________
2. What do blue signs indicate? ______________________
3. What does an octagonal sign mean? __________ What color is it? ______________
4. What 2 things do green signs tell? ______________________
5. What does a pennant shaped sign show? ______________________
6. A brown trapezoid shows what? ______________________
7. A triangle with point down has what color and meaning? __________ ______________
8. A yellow sign usually means what? ______________ What is its usual shape? ______________________
9. A school warning is what color and shape? ______________________
10. What shape and color is a railroad crossing sign? __________ ______________
11. White pavement markings mean what two things? __________ ______________
12. Yellow lines mark what traffic flow? __________ __________
13. Permissive (okay to pass) lines are: __________ color? ______
14. Restrictive lines (not okay to pass) are: ______ color? ______
15. An arrow and island on signs mean? ______________________
16. A red circle with a diagonal line means? ______________________
17. What does an orange sign show? ______________________
18. For what purposes is a red sign used? ______________________

ANSWERS

TRAFFIC SIGNS, COLORS, SHAPES, AND SYMBOLS

Name ______________________________

1. Give two examples of signs that are always black and white? *(speed limit, one way)* What is their usual shape? *(rectangular)*
2. What do blue signs indicate? *(services/rest areas)*
3. What does an octagonal sign mean? *(stop)* What color is it? *(red)*
4. What 2 things do green signs tell? *(directions/distances)*
5. What does a pennant shaped sign show? *(no passing zone ahead)*
6. A brown trapezoid shows what? *(national park or recreational area)*
7. A triangle with point down has what color and meaning? *(red and yield)*
8. A yellow sign usually means what? *(warning)* What is its usual shape? *(diamond)*
9. A school warning is what color and shape? *(yellow and pentagon)*
10. What shape and color is a railroad crossing sign? *(circle; black and white)*
11. White pavement markings mean what two things? *(traffic going in same directions/crosswalks)*
12. Yellow lines mark what traffic flow? *(opposite)*
13. Permissive (okay to pass) lines are: *(broken)* color? *(yellow)*
14. Restrictive lines (not okay to pass) are: *(solid)* color? *(yellow)*
15. An arrow and island on signs mean? *(direction of traffic)*
16. A red circle with a diagonal line means? *(no)*
17. What does an orange sign show? *(construction/road maintenance)*
18. For what purposes is a red sign used? *(to prohibit/to restrict)*

MOTORCYCLE SAFETY

CONCEPT OUTLINE

Concepts	Goals
I. Causes of Motorcycle Accidents	The student will identify the major causes.
II. Limitations of a Motorcycle	The student will recognize the motorcycle's relationship to other vehicles on the road.
III. Types of Motorized Cycles	The student will know three types of motorcycles.
IV. Parts of Motorized Cycles	The student will recognize the most important parts of a motorcycle.
V. Preride Checks and Preventive Maintenance	The student will demonstrate the ability to give a motorcycle preride and monthly maintenance checks.
VI. On-the-Road Motorcycling	The student will know the Rules of the Road as well as common sense rules regarding motorcycle operation on the road.
VII. On-the-Trail Cycling	The student will know the common sense rules to use to drive safely on the trail.

CONCEPT I: CAUSES OF MOTORCYCLE ACCIDENTS

Each year approximately 2,000 persons are killed driving motorized cycles. A cyclist is five times more likely to be killed than a driver or a passenger in a car.

Researchers at the Highway Safety Research Center (HSRC-UNC) studied 956 motorcycle accidents in North Carolina in 1968. They found that the biggest hazards to motorcycles is the automobile. In 62 percent of the accidents involving a motor vehicle, the auto driver was at fault. The driver's excuse in almost 100 percent of the cases--"I just didn't see him." The motorcyclist was at fault only 29 percent of the time, primarily for following too closely.

A third of motorcycle crashes involve no other vehicle. The driver loses control for some reason--usually while rounding a curve.

Another HSRC study showed that a person who borrowed a motorcycle was nine times more likely to have an accident than the owner of the cycle.

Motorcyclists should always drive defensively and expect the worst from car drivers who might not see them. To make themselves more visible, they should wear reflective helmets, vests, and gloves. State law requires that headlights and taillights be used at all times.

CONCEPT I: CAUSES OF MOTORCYCLE ACCIDENTS (cont)

Objectives	Activities
1. Students will list four factors associated with highway accidents involving motorcycles. 2. Students will be able to analyze a motorcycle accident by describing the factors that led to the accident and the point at which the accident became unavoidable.	1. Have the students check local traffic accidents involving motorized cycles in local community. Local police, sheriffs department, highway patrol, and local newspapers may be of help. Use the descriptions of motorcycle accidents to analyze causal relationships. Have a student diagram the accident. Use your imagination to fill in gaps. Then ask the students: What actions led to this accident? Were roadway conditions a factor? When did this accident become inevitable? What decision led to this accident? 2. As class project, draw map of local area and spot accidents. Keep charts on other relevant facts--age, time, fault, type cycle, etc. 3. Study the pamphlet, "The Invisible Vehicle," produced by UNC-Highway Safety Research Center. It is available from the Governor's Highway Safety Program. Contact your regional representative.

CONCEPT II: LIMITATIONS OF A MOTORCYCLE

1. A motorcycle is harder to operate than a car because the cycle's stability depends on the driver. Balance and coordination demand the driver's constant attention.
2. It exposes rather than protects the driver.
3. Its roadholding ability is less when braking or when driving on wet, bumpy, or slippery surfaces.
4. Its size makes visibility difficult.
5. Auto drivers tend to misjudge its speed.
6. Rear vision is limited; necessary head checks to the rear reduce the driver's awareness of oncoming dangers.

Motorcyclists must be aware of how their machines react to different surfaces and conditions; even normal surfaces have dangerous cracks, dips, bumps, debris, and loose materials. Cyclists should anticipate obstacles, go around them when possible, and know how to handle unavoidable obstacles.

1. Bumps, cracks, and other rough surfaces. Slow down before reaching them. Do not change speed or direction abruptly. Try to cross at a favorable angle; experts recommend a 90 degree angle. Do not swerve or leave your lane to cross. Standing on the pegs helps cushion the shock from a rough surface. Shift weight back as far as possible; "stand on the pegs" by gripping the handlebars firmly, pushing up with your legs to lift your body from the saddle; keep knees loose and lower part of legs perpendicular to pegs; keep your wrist and arms loose to handle the shock; and return to a sitting position as soon as possible.
2. Sand, mud, and water. These conditions create difficulty in steering, balance, starting, and stopping, and they necessitate the use of more power than normal. Accelerate and brake slowly and gradually. Remember: stopping distance will be increased.
3. Loose gravel. Riding on gravel is as slippery and dangerous as riding on marbles. Ride slowly, accelerate, and brake slowly and gradually. Remember: stopping distance will be increased.
4. Slippery surfaces. Wet paved roads--particularly paved roads at the start of a rain storm--create dangerous situations. Water mixes with the dirt

and oil on the road and reduces traction. Stop and sit out any quick rain shower. Avoid riding on wet painted lines; they are extra slippery. Railroad crossings are also very slippery when wet. Try to ride in the tracks made by other cars and trucks. Do not brake suddenly. Motorcycles should not be ridden in icy conditions, as they are more apt to go out of control than cars. Cyclists should beware of ice patches on overpasses and in shady areas when snow and ice begin to melt.

CONCEPT II: LIMITATIONS OF A MOTORCYCLE (cont)

Objective	Activities
Students will be able to demonstrate knowledge of the dangers inherent to motorcycle driving and to identify hazards faced by the cyclist on and off the road.	1. Dos and don'ts. Discuss motorcycle limitations and safety precautions which must be taken to compensate for the limitations. 2. Road surfaces. Discuss the problems posed by different road surfaces. Relate to them how the cyclist should handle unavoidable obstacles. 3. Accident data. Assign students to research accident data on motorcycles and to report on facts such as time and place of accident, age of victims, fault, type of cycle, other vehicles involved, weather conditions. 4. Class discussion. Have students compare hazards faced by motorized cycles to those faced by bicycles. 5. What if . . . Have students decide what they would do with the following problems and why. Have them suggest ways to solve them and avoid hazards. a. There is no place to drive around my house except in the street, and that is against the law.

CONCEPT II: LIMITATIONS OF A MOTORCYCLE (cont)

Objective	Activities
	b. There are a lot of State dirt roads around my house, and there is never any traffic. Why can't I ride on them? I want to ride somewhere else besides around the house. Variation: Have students make a story-board for the bulletin board in the classroom using the situations and suggestions.

CONCEPT III: TYPES OF MOTORIZED CYCLES

There are many types of motorized cycles of varying horsepower, size, weight, and wheelbase. The crudest is a homemade model--a bicycle with a small motor attached. Such a cycle is not considered safe because it lacks the quality and stopping ability of factory-constructed motorized bicycles. Other kinds of machines are:

1. Street cycle. Performs well in traffic; is built to handle traffic speeds and conditions; is not sturdy enough for trail driving.
2. Trail cycle. Is light- or medium-sized; handles rough ground easier; has tires with deep tread to dig into sand and dirt; has smaller brakes to reduce chances of locking a wheel by braking too hard. Engine produces more power at lower speeds. It is not designed to perform efficiently in city or highway traffic.

Minibikes have gained a great deal of popularity in the past few years, especially among young people. Minibikes are great fun if handled properly off the road, but lack the speed and in some cases the safety features required by law to operate on the roadways. It is illegal to operate a minibike on public roads.

3. Sports cycle. Is designed for racing, hill climbing, scrambles, and other forms of two-wheeled sports; is not designed to be used in traffic.

With the help of a local salesman, the cyclist can be matched to the proper size and type of cycle. Size refers to engine's piston displacement in cubic centimeters. The more cc's of displacement, the larger the engine.

Light weight: up to 200 cc's
Medium weight: from 200 cc's to 400 cc's
Heavy weight: over 400 cc's

CONCEPT III: TYPES OF MOTORIZED CYCLES (cont)

Objectives	Activities
1. Students will be able to identify the characteristics of the different types of motorized cycles.	1. Class Discussion. Have the students answer the following questions to initiate class discussion: - What kinds of braking systems does a motorcycle have? - How are the different types of motorized cycles similar? different? - Why is the homemade motorized cycle considered the crudest model? 2. Assign students specific topics (horsepower, size, weight, etc.) to report on: a. Engine size of less than 150cc. b. Engine size of 150cc and over. c. Legal differences between a highway and non-highway powered two-wheeler. 3. Ask the students to visit various motorcycle dealers and collect information about various types of cycles. Ask them to determine the makes of powered two-wheelers which are the best constructed, safest, etc. and why. 4. Guest Speaker. Invite a local salesman to visit the class to discuss different types of motorized

Objectives	Activities
	cycles, or ask permission to visit local cycle shop to see various types of motorized cycles available. 5. Cycle Survey. Have students make a survey of the students in the school or in certain grades to determine the number of students who have miniature cycles, the kind of cycle that they drive, and why they chose that kind.

CONCEPT IV: PARTS OF MOTORIZED CYCLES

Although many motorcycles look different, they all have the same basic parts listed below.

1. Front brake cable
2. Clutch lever
3. Speedometer
4. Headlamp
5. Front fork
6. Front fender
7. Gear shift lever
8. Fuel tank cap
9. Fuel tank
10. Left frame cover
11. Duel seat
12. Tail/brake lamp
13. Rear shock absorber
14. Muffler
15. Chain case
16. Fuel cock
17. Fight frame cover
18. Rear fender
19. Rear footrest
20. Throttle grip
21. Center stand-kick stand
22. Front brake lever
23. Ignition switch
24. Horn
25. Exhaust pipe
26. Front footrest
27. Brake pedal

A qualified serviceman is needed to explain the function of the parts and their interrelations to each other. At a cycle shop various kinds of cycles may be seen at once and corresponding parts pointed out.

Preventive maintenance is needed on many of the parts. Again, a qualified person is needed to explain how this is done.

CONCEPT IV: PARTS OF MOTORIZED CYCLES (cont)

Objective	Activities and Resources
1. Students will identify major parts of motorized cycles.	1. Have students who have trailbikes or minibikes bring their owner's manuals to class. Have them show diagrams or pictures of their bikes and bike parts. 2. Have students bring motorized cycles to class to identify corresponding parts on each. 3. Field trip to local cycle shop to see types of motorized cycles and to locate corresponding parts with aid of salesman. 4. Ask permission to go to a local motorcycle shop and/or dealer and obtain information or pamphlets describing parts and features on the line of cycles that are sold there. Using pictures or other information from the pamphlets, have students construct a chart or bulletin board of parts and a description of each.

CONCEPT V: PRERIDE CHECKS AND PREVENTIVE MAINTENANCE

Preride checks and regular preventive maintenance are essential for the safety of the cyclist on the road should include:

1. Check tires, wheels, and spokes. Check tires for proper inflation and wear. Check wheels for bent or cracked rims and for broken or loose spokes.
2. Check shocks. Check shocks and forks, proper travel, oil leak, and mounts. (See owner's manual for oil type and recommended oil change frequency.)
3. Check frame. Look for cracks, broken parts, and intersections of frame parts. Check forks and frame after each spill. (See owner's manual.)
4. Check handlebars. They should be tight, aligned with front wheel, and at proper height.
5. Check controls. The clutch brake and throttle control must be in good condition. Cables should be freeworking, have proper play, and be replaced if frayed. (What action should be taken if the throttle were to stick at 00 km/h, 30 mph?) After a spill, check and realign clutch and brake hand control. (Some models must remain in line due to possibility of cutting wiring.)
6. Check seat. It must be well secured and in good condition. A good seat helps prevent back injuries.
7. Check brake. Check front and rear brakes for good pressure and for working of brake lights.
8. Check lights. Check low, high beam and tail lights. Use of the high beam should be signaled by a light indicator. (See owner's manual.)
9. Check horn. It must be securely mounted and audible for a distance stated by law.
10. Check chain. It must be in good condition, oiled, and in line. Check for too much free play.
11. Check oil. The fuel oil must be of proper mixture, the transmission oil at proper level.

Preventive maintenance is needed on many of the parts. A qualified person is needed to explain how.

Monthly or 1,000 Mile Inspection and Adjustment

The following checklist is directed at small displacement street machines. Trail machines require more frequent adjustment. Large street machines require less. A more thorough list is included in the owner's manual of each motorcycle.

1. Check all bolts for tightness; pay particular attention to these:
    - a. Handlebar attaching bolts
    - b. Swing arm and shock bolts
    - c. All front fork bolts
    - d. Engine mount bolts
    - e. Check spokes for tightness
    - f. Axles and chain tensioner bolts
    - g. Foot pegs
2. Tires, inspect for:
    - a. Cuts
    - b. Tread depth
    - c. Correct pressure (use guage)
    - d. Wheels in round and roll free
3. Electrical system, check:
    - a. Lights
    - b. Switches
    - c. Battery electrolyte level
    - d. Condition of wires
    - e. Horn
4. Engine and Drive Train.
    - a. Replace spark plugs.
    - b. Service air cleaner.
    - c. Adjust drive chain and rear brake (adjust rear brake afterward).
    - d. Change engine and/or transmission oil.
    - e. Adjust clutch free-play.
    - f. Adjust oil pump on two stroke model.
5. Brakes
    - a. Adjust front brake. (Check hydraulic fluid).
    - b. Adjust rear brake after chain is adjusted.
6. Miscellaneous:
    - a. Check condition of cables and linkage-lube tube.
    - b. Check for cracks in frame.
    - c. Check muffler for exhaust leaks, stress cracks and proper mounting.
    - d. Motorcycles should be kept clean - this will contribute to longer parts.
    - e. Check and clean brake shoes after extended rides in sand and water.

Objective	Activities
Students will be able to demonstrate knowledge of preride checks and preventive maintenance procedure for motorcycles, and identify the major parts of a motorcycle.	1. Discuss the importance of preride checks and preventive maintenance, and procedures involved in each task. 2. Have students develop preride checklist for motorcycles. 3. Invite a qualified repairman from a local cycle shop to discuss and demonstrate simple maintenance and quick repairs.

CONCEPT VI: ON-THE-ROAD MOTORCYCLING

Traffic laws in North Carolina relate directly to the safety of the driver of and the passengers on the motorcycle. The laws are enumerated on the student handout herein. These apply only to the use of a motorized cycle on streets and highways; they do not apply to private property. Cyclists would be foolhardy not to equip themselves and their cycles to follow traffic safety rules and regulations at all times. In addition to State laws, they should practice the following Rules of the Road:

1. Be alert for potential dangers and be prepared to handle or avoid them. Drive defensively and be a better driver than the auto driver. Watch out for:
    - a. Getting trapped in traffic. Keep your distance from traffic, allow room to maneuver.
    - b. Doors on parked cars flying open or cars pulling out unexpectedly. Don't travel close to parked cars.
    - c. Oil slicks on road. Find your lane and stay on the left of it; center of lane may have oil slicks.
    - d. Vehicles turning left without warning. Think ahead and stay alert.
    - e. Pedestrians. Come to a full stop when turning right. Check to the right for pedestrians.
    - f. Blind entries. Doublecheck at blind entries. Other drivers will overestimate your stopping distance and underestimate your speed.
    - g. Passing. Always pass with caution.
    - h. The unexpected. Pets, children darting into your path.
2. Practice skillful driving techniques.
    - a. Be sure you're in neutral when starting up.
    - b. Sit squarely and lean forward slightly; good posture decreases fatigue.
    - c. Move out at a reasonable speed; stunt riding is dangerous and makes enemies.
    - d. Always signal for turns.
    - e. Know how to slow down and stop safely. To slow down, close the throttle and apply the rear brakes gently. To stop quickly, turn the throttle off and apply the rear brakes. When rear brakes start to take hold, apply the front brake by squeezing the hand lever; downshift as needed. Squeeze clutch lever to disengage gear when your speed is reduced

below 16 km/h, 10 mph. Stop smoothly. Drop a foot to the ground. Know the distance it takes to safely stop. Remember: Changes in surfaces affect stopping distances and can increase changes or loss of control in stopping.

f. Gear up and gear down smoothly. Engage the clutch gradually. Open the throttle gently in upshifting; in downshifting, decrease the throttle speed before reengaging the clutch to prevent shock from sudden speed reduction.

g. Avoid high speed, sudden wheel turns.

h. Don't turn wheel and apply brake at the same time; this can cause skids.

i. Don't hitch onto other vehicles.

j. Know your controls and devices so thoroughly that working them becomes a habit; looking for them can cause loss of control.

k. Drive on surfaces having good traction if possible.

l. Use body steering for faster turns, but don't oversteer; tell your passenger to let you do the steering.

m. Never allow a passenger to ride side saddle; ride at slower speeds with a passenger since it takes more time to stop and slow down.

n. Check clothing of passengers; loose clothing can become tangled in chains and spokes.

o. Have passengers keep their feet on passenger foot pegs at all times.

Objective	Activities
1. Students will be able to list laws governing cyclists in this State and demonstrate knowledge of the Rules of the Road which contribute to their safety.	1. Distribute the handout on N.C. laws (p. 291) that govern motorized cycles. Initiate discussion with these questions: What are the regulations for operating a motorcycle in North Carolina? Do the laws apply only to motorized cycles driven on streets and highways? What is the definition of a motorcycle? Are these laws similar to the laws for bicycle drivers? Why or why not? 2. Invite a local enforcement officer to speak to the class on laws or ordinances governing motorized cycles, and the importance of these laws for safe, courteous, responsible driving. 3. Have students illustrate the Rules of the Road for motorized cycles for the bulletin board in the school and/or as a PTA presentation. 4. Film: On Two Wheels (resource list). Emphasize that no one under 16 can ride a motorcycle on the street. 5. Discuss safety rules and laws that all operators of powered two-wheelers should obey. Distinguish between rules and laws.

NORTH CAROLINA MOTORCYCLE LAWS

Sec 20 - 124(d)	Every motorcycle and every motordriven cycle when operated upon a highway shall be equipped with at least one brake which may be operated by hand or foot.
Sec 20 - 38(20)	Motorcycle Definition - every motor vehicle having a saddle for the use of the rider and designed to travel on not more than three wheels in contact with the ground, including motor scooters and motordriven bicycles, but excluding tractors and utility vehicles equipped with an additional form of device designed to transport property and three-wheeled vehicles while being used by law enforcement agencies.
Sec 20 - 129	Every motorcycle shall be equipped with at least one and not more than two headlamps which shall be turned on while the motorcycle is using public roads.
Sec 20 - 130	Any motor vehicle may be equipped with not to exceed two spot lamps except that a motorcycle shall not be equipped with more than one spot lamp.
Sec 20 - 126	No person shall drive a motorcycle upon the streets or highways of this state unless such motorcycle is equipped with a rear view mirror, so mounted as to provide the operator with a clear undistorted and unobstructed view of at least 200 feet to the rear of the motorcycle.

CONCEPT VII: ON-THE-TRAIL CYCLING

Minibike trail riding is a popular sport among junior high school students. Safety rules should be observed by participants.

1. Wear appropriate riding apparel.
    a. Boots instead of tennis shoes or street shoes. A slanted heel from the sole of the boot is less likely to catch on trail obstacles.
    b. Tough fabrics protect the body from clutching branches, flying pebbles, thorns, and bugs. Straightlegged pants and long sleeve shirts are recommended.
    c. Riding gloves, preferably with grooves in the palm and fingers, provide secure grip.
    d. Weatherproof clothing protects the rider from the wet and cold. A helment that meets safety standards.
2. Always perform a preride check of the cycle's brakes, bolts, cables, gas, chains, and tires.
3. Maintain proper on-bike attitude.
    a. Think safety. Look before you go. Stay on existing trail. Always know your location. Stay within walking distance of camp. Be alert for the unexpected (wire, rocks, ruts and gulleys, fallen trees, and mechanical failures.)
    b. Think of protection of environment. Avoid spinning wheels which will erode soil; do not ride over plants.
    c. Be considerate of others. Ask permission of private property owners before riding on their land. Stop to allow horseback riders to pass; horses are often frightened by minibike noise.
4. Do your part ot maintain a good image of the minicyclist.

Objectives	Activities
	1. Film: The N[illegible]ide from American Honda (resource list). 2. Writing assignment: "How I Can Help Maintain A Good Image of the Minicyclist." 3. Dirt bikers in your class will doubtless have many experiences to relate. Ask if any have had accidents (not necessarily serious ones.) Evaluate accident causes. Have the student diagram the accident. Ask: What caused the accident? Did it happen because the driver missed seeing some factor in the environment? Did he see it but incorrectly estimate it's effect on the cycle? What decision did he make that caused the accident? Did he overestimate what the cycle or the driver could do? At what point did the accident become unavoidable? Encourage students to develop abilities to analyze situations. How do you know if a risk on a dirt bike is reasonable or unreasonable?

ACTION PROJECTS

TEACHER INFORMATION - ACTION PROJECTS

Your students may be too sophisticated for another classroom session in pedestrian or bicycle safety. Success may be obtained by getting them out of the classroom seats and putting them to work on an action project. The students can put all that energy to good use by involving themselves in teaching other students or by reaching out into their community to offer services.

Fifteen suggestions for action projects are outlined in this concept. Thumb through them to see if they will interest you and your students. Feel free to adapt or expand any ideas. Most of the activities will integrate nicely into either language arts, social studies, or health/physical education programs.

PROJECT OUTLINE

I. Bike Patrol and Bike Courts
II. Student Teachers for Traffic Safety
III. Bike Rodeos
IV. Bicycle Safety Check Lane
V. Safety Booths
VI. Health and Safety Fair
VII. Trail Bike Club
VIII. Bike Registration Cards
IX. Bike Racks
X. Traffic Safety Dramas
XI. Hazard Hunt and Rehabilitation
XII. Automobile History of Your Town
XIII. Historic or Scenic Bike Tours (Design)
XIV. Hall Highways
XV. Bicycle Safety Week

ACTION PROJECT I: BIKE PATROL AND BIKE COURT

Objectives	Activities
1. Students will enforce bicycle Rules of the Road (and ordinances they develop themselves). 2. Students will gain experience in: a. bike Rules of the Road, b. Law enforcement processes, c. Leadership and responsibility, and d. Lawmaking processes.	Set up a bike patrol and court to reinforce bike Rules of the Road and to supervise bike parking at 1. Bike Patrol. Have students (eighth grades or schoolwide) elect or delegate a representative from each homeroom. Responsibilities should be rotated each month or week to involve as many students as possible. Responsibilities of the first group of patrol members should include a survey of school grounds and problems of bike and other vehicle traffic coming to and from school; they should recommend school ordinances to be decided on by the student council or by school referendum. Another group should insure that everyone in the school is aware of State, city, and school Rules of the Road. Once both are accomplished, the bike patrol would be responsible for supervising traffic and handing out citations requiring offenders to appear in bicycle court. 2. Bicycle Court. A representative from each grade level should be elected periodically to be junior judges at the bicycle court. A staff member

ACTION PROJECT I: BIKE PATROL AND BIKE COURT (cont)

Objective	Activities
	should be senior judge (with the deciding vote.) The court should hear each case. The alleged violators should be informed of their rights and read the charges against them. Evidence may be heard. Judges should decide guilt and be encouraged to be creative in developing educational sentences for offenders. 3. Related Activities. Arrange for a police officer to discuss traffic enforcement techniques with students. Have the judges observe a real traffic court. Invite a lawyer to discuss court procedures or a city council member to discuss lawmaking.

ACTION PROJECT II: STUDENT TEACHERS FOR TRAFFIC SAFETY

Objectives	Activities
1. Students will retain basic pedestrian and bicycle safety concepts. 2. Students will gain experience in: a. Responsibility and leadership, b. Working with younger children, c. Communication, art, and social skills.	Arrange for your students to "adopt" a primary class and act as teacher's aides for the children's traffic safety lesson. Activities may be drawn from the lower level Traffic Safety Resource Curriculum. Your students can be invaluable aides, especially for on-the-street activities. Encourage them to develop a PTA program involving little children and their parents.

ACTION PROJECT III: BIKE RODEOS

Objectives	Activities
1. Students will develop motor skills needed for safe bicycling. 2. Students will also gain experience in: a. management and organization, b. communication and art, c. leadership and social skills.	Put students in charge of setting up a bicycle rodeo for your school or a neighboring elementary school. Blueprints for several kinds of rodeos are in this volume and in Level C of the Traffic Safety Resource Curriculum. Set up committees to be in charge of: 1. Publicity for the event. 2. Finding a safe site and arranging permission to use it. 3. Arranging for judges and contacting the local police for advice and assistance in traffic control. 4. Setting up the course. 5. Registration of participants. 6. Procuring and presenting prizes.

ACTION PROJECT IV: BICYCLE SAFETY CHECK LANE

Objectives	Activities
1. Students will operate bicycles in safe mechanical condition. 2. Students will gain experience in: a. Management and organization, b. Communication and social skills, c. Citizenship.	Put students in charge of setting up a bicycle safety check lane for the school or on Saturday for the whole community. Use the maintenance checklist on p. 96 or write to the National Safety Council for "Bicycle Maintenance Manual" (about 30¢)--a detailed maintenance check blueprint. The Traffic Safety Education Branch, N.C. Department of Motor Vehicles (Department of Motor Vehicles Building, Raleigh, N.C. 27611) has a packet with a Rules-of-the Road test, a decal, and a card for each participant. Set up committees to: 1. Arrange publicity. 2. Find a site and secure permission to use it. 3. Register vehicles, and administer and check tests if they are used. 4. Arrange for qualified persons to check bikes and contact local police for advice and traffic control assistance. If your police force has a bicycle registration program, they may want to contribute to this activity.

ACTION PROJECT V: SAFETY BOOTHS

Objectives	Activities
1. Students will use knowledge of traffic safety concepts to create displays for the public. 2. Students will gain experience in communication, art, and social skills.	Have students prepare a safety display booth for the shopping mall or other community gathering place and prepare posters and handouts. Topics for the booths could include: 1. Pedestrian Safety in Our Town 2. Bicycle Safety in Our Town 3. What You Should Know about Safety Belts

ACTION PROJECT VI: HEALTH AND SAFETY FAIR

Objectives	Activities
1. Students will help organize and contribute to a health and safety fair. 2. Students will gain experience in: a. Communication and art, b. Social skill, c. The functions of various community health services organizations, d. Community relations,	Have students arrange a health and safety fair at the shopping mall or other community gathering place. Have them contact local health services agencies and persuade them to set up a booth about their agencies, the services offered, or whatever topics they choose. The county health department would be a good place to start. Look in the yellow pages of the telephone directory for social service organizations and associations. Have students prepare demonstrations and displays on aspects of traffic safety.

ACTION PROJECT VII: TRAIL BIKE CLUB

Objectives	Activities
1. Students who drive trail bikes will have supervised trail rides and will help younger minicyclists learn to ride safely. 2. Students will gain experience in responsible leadership and social skills.	Have a school staff member who is qualified, sponsor a trail bike club for students who ride trail bikes. Club projects fostering safety attitudes and leadership qualities might include: 1. Location and development of a minibike/trail bike range or course 2. Group rides and picnics 3. Sponsoring a junior club for elementary students to teach novice minicyclists safety concepts and safe handling of their machines (a minicycle rodeo is included in Level C). Involve parents of the cyclists and other safety conscious adults skilled as motorcyclists.

ACTION PROJECT VIII: BIKE REGISTRATION CARDS

Objectives	Activities
1. Students will obtain a bike ID card which will help identify their bikes in case of theft. 2. Students will gain experience in theft prevention (consumer education), and in management and economics.	Open a bike registration-card booth as a theft prevention and money-making activity. The card should include: a color picture of the bike; the serial number; identifying characteristics (make, model, and written description); and name and address of owner. Have students figure the cost of making such a card and the pricing needed to make a profit. Set up a booth to take the picture and get the information. Recommendation: If you are using a roll of film, print the owner's last name on a large piece of cardboard or paper (10 cm x 30 cm) and place it in the picture so that bike can be identified correctly later. Be sure to inform the local police of this activity; they may want to tie it in with their bicycle registration program.

ACTION PROJECT IX: BIKE RACKS

Objectives	Activities
1. The school will have enough bike racks. 2. Students will gain experience in: a. Consumer education, b. Organization and citizenship, c. Social skills.	Suggest that students raise money for bike racks, if needed, as a class project. Have them: 1. determine by survey how many bikes would be driven to school if racks were available, 2. find out where to purchase the racks, 3. compare price and quality by bike types, 4. raise money and make the purchases, 5. install the racks. Note: It will be educational for students to find answers for themselves. For your information, school suppliers, hardware stores, or Sears catalogue are sources. Prices vary according to type (permanent or portable), quality, and whether they are assembled or unassembled. Sears sells an unassembled portable rack for six bikes for $20; other prices are $36 for an permanent 8-bike rack (retail hardware) and $145 for a permanent 18-bike rack (school supplier).

ACTION PROJECT X: TRAFFIC SAFETY DRAMAS

Objectives	Activities
1. Traffic safety concepts will be reinforced by the students' involvement in the preparation of plays, skits, fashion shows, or music for an assembly. 2. Students will gain experience in communication and other language skills and in social skills.	Give free rein to the students' imaginations by having them sponsor a traffic safety assembly (or some variation). Have students illustrate safety concepts --school bus safety hints, pedestrian or bike accident prevention, wearing safety belts, emergency procedures, etc.--or the awful consequences of failing to do so. Plays, skits, songs, and poster contests are source media to use. Auto and bike histories can be used for fashion show themes and for skits.

ACTION PROJECT XI: HAZARD HUNT AND REHABILITATION

Objectives	Activities
1. Students will identify hazards to pedestrians and bicyclists in the community and organize appropriate action to eliminate them. 2. Students will gain experience in: a. Community action and citizenship, b. Communication and other social skills.	Have students locate hazards to pedestrians and bicyclists in the community. Have them decide on appropriate remedial actions, and check their decisions with the local traffic engineer. Encourage them to seek remedial action. If a bush is blocking the view at an intersection, speak to the owner of the bush and offer to trim it. If signs, signals, or other changes need to be made, student can approach the city council or county commissioners with their ideas.

ACTION PROJECT XII: AUTOMOBILE HISTORY OF YOUR TOWN

Objectives	Activities
1. Students will learn firsthand of the changes the automobile made on life in their area. 2. Students will gain experience in: a. Functions of community institutions (newspapers, county clerk and lawmaking), b. Interviewing techniques, writing, and other language arts skills, c. Community heritage and history.	Widespread use of the auto made sweeping changes in the lives of Americans. Roads were improved, laws developed, millions of jobs created, and social patterns changed. How did the coming of the auto affect your community? Have students search (1) morgues of the local newspaper for the first stories about automobiles, and (2) county or city laws for the first traffic codes. Have them try to find and interview the elderly (in their 80's) for eyewitness accounts of the first auto in their neighborhood. (Encourage student's detective instincts to look for elderly native to the community.) Such accounts will be impossible to find a few years from now when there are no survivors from the horse and buggy days. It will be running a race with death. If no first horseless carriage witnesses can be found, accounts of the early days of autos (Tin Lizzies in rural North Carolina) will be of interest. To start the interview, ask: 1. When did you first ride in a car? 2. What did you think and feel about autos then?

ACTION PROJECT XII: AUTOMOBILE HISTORY OF YOUR TOWN

Objectives	Activities
	3. What was the first car your family owned? What was it like? How many people had cars then? 4. What were the roads like then? 5. How did the car change your life? The town or area? For better or worse? Collect interviews and results of the research and make them into a book to present to the town library or archives. Illustrations might be found in old, old family albums.

ACTION PROJECT XIII: HISTORIC OR SCENIC BIKE TOURS

Objectives	Activities
1. Students will identify places of scenic and historic interest in your area and design a safe bike tour route to link them. 2. Students will gain experience in: a. Community heritage and history, b. Language arts skills, c. Community political and economic structure.	Have students list historical or scenic points of interest in their area. Locate these on a detailed city or county map. Trace a route that runs past all or most of the points. Divide the route into sections and assign each section to a small group. The small group would be responsible for arranging transportation (by parents) to that section and surveying for safety. Less traveled routes with wide shoulders or lanes are necessary for safety and traffic controls allow easy crossing of major routes. After the route is selected, have students prepare a "tour guide" describing the route (and a map), the facts about each point of interest, and safety rules for bike tourers. Take the guide to the city council, chamber of commerce, or county commissioners. Students should present their cases and try to persuade them to set up the bike route.

ACTION PROJECT XIV: HALL HIGHWAYS

Objectives	Activities
Concepts of the Rules of the Road and traffic signs, signals, and markings will be reinforced.	Have students study the traffic flow in the school plans and mark the hallways as if they were highways. Have them make large traffic signs and mark the floors of the hallways with wide masking tape to simulate pavement markings. All students in the school should be required to obey signs and markings. Hall monitors may act as traffic cops to direct traffic and to warn violators during the exercise.

ACTION PROJECT XV: BICYCLE SAFETY WEEK

Objective	Activities
Total school population will be utilized in implementing a bicycle safety week.	Devote a week to bicycle safety at your school. Include studies or activities in all classrooms, and culminating events such as a bicycle rodeo, a bicycle tour, and an awards assembly. Skillful coordination, approval from the superintendent, and the principal's enthusiasm and leadership will essential. The principal should allot one week of school time to the project, fix the dates, insure adequate planning time for each department, and be the one to approve activities and work plans. The administration would be responsible for enlisting student monitors to "direct traffic" in the halls and to protect the increased number of bicycles on the schools grounds. At an awards assembly or other medium on the last day, the guidance department could distribute certificates of completion for every student and of recognition (by department) of outstanding work. The media specialist could order special materials for the week. You could possibly arrange closed-circuit television coverage of the events. Make every effort to involve the PTA; parents can be invaluable in contacting key

ACTION PROJECT XV: BICYCLE SAFETY WEEK (cont)

Objective	Activities
	people in the community, providing specialized knowledge, and furnishing student transporation for special assignments and errands. Any number of the action projects and the concepts described in this volume can be adapted to student plans and the school's unique structure. Two methods for integrating these activities are possible. One method is to pick a project and spread responsibilities throughout several departments. The other is for each department to choose a project which suits the discipline. Suggestions for both methods are outlined below.

PROJECT: TRAFFIC ENVIRONMENT

(To emphasize Rules of the Road, mark the school halls with traffic signs for students to obey.)

MATH - Have students measure halls in metric units for "hall highways"; have them compute "traffic flow" by time of day and location, and decide which signs to place where.

INDUSTRIAL ARTS - Draw to scale a map of the school building to illustrate traffic flow (represent school halls, etc., as streets and highways.); distribute map copies to all students. Construct a wooden scale model of the school, as depicted in the map, and place it at the school entrance.

ART - Paint and place traffic signs; put tape on the floor to indicate pavement markings.

SPECIAL EDUCATION - Conduct guided tours of the halls, letting students interpret the signs, etc., for themselves.

OTHER DEPARTMENTAL ACTIVITIES

(Here are some other ways to integrate Bicycle Safety throughout the school.)

ART - Conduct a bike safety poster contest with emphasis on newspaper coverage, and prepare a display for a local shopping mall (p. 303).

HEALTH AND PHYSICAL EDUCATION - Prepare for a bicycle rodeo (p. 301).

HOME ECONOMICS - Make decorative patches and ornaments for the bike and the biker using retroreflective material; conduct a consumer education class on best buys in bikes, emphasizing safety features; prepare a fashion show featuring bicycle fashions, then and now.

LANGUAGE ARTS - Write news releases for newspapers, T.V., and radio; have an essay contest in the school; write and design a brochure describing the bike tour being developed by social studies students; write speeches for those selling the tour to town and county officials.

SOCIAL STUDIES - Design a bike tour of N.C. historic places you have been studying (p.   for details); approach the chamber of commerce, highway department, or other agency to determine feasibility of the project; other possibilities are topographical relief maps and reports on bicycle uses in other countries.

MATH - Have students compute their distances traveled by bike each week and each year; have them study stopping distances and velocity--good activities for graph making.

MUSIC AND DRAMA - Create musical slogans, jingles, and musical skits; put together band music and organize a bicycle safety parade.

SCIENCE - Teach bicycle parts and functions as well as bike maintenance.

BUSINESS DEPARTMENT - Furnish typing services for any activities.

JUST FOR FUN

WHAT'S UP?

by Tom Dodds

YOU may have downgraded someone's grasp of a situation by saying, "He doesn't know which end is up."

But do you really know which end is up? Or down? Whether it's left, right or straight ahead? If it's near or far? Or high or low?

Decisions relating to direction and position have to be made frequently. Many involve safety. The more often we opt correctly, the less chance there is of finding ourselves behind an accident eight ball.

Here are some questions based on familiar situations. Each can be answered with a direction or position—left, right, straight, up, down, away from, toward, etc.

How many can you get right?

1. You are on a two-way highway. An oncoming vehicle veers across the center lane into your lane on a collision course with your car. Your best bet is to brake, steer __________ (left, right, straight ahead), blow your horn or flash your lights if there's time.

2. It's safest to descend a ladder by facing __________ (toward, away from) the ladder.

3. Before entering an intersection you should check first to the __________ (left, right) and then to the __________ (left, right).

4. When using a wrench with the open jaws facing you the handle should be __________ (pulled toward, pushed away from) you.

5. In two-way traffic, bike riders should ride on the __________ (left, right) side of the road.

6. For headlights to be most effective in fog __________ (low, high) beams should be used.

7. When you are driving behind a motorcycle you should be __________ (closer to, farther back from) it than you would be if you were following another car.

8. Generally speaking, when there's any question of right-of-way at an intersection, you should yield to the vehicle on your __________ (left, right).

9. To set a nail for driving, your thumb and forefinger should be positioned __________ (near the head, near the point) of the nail.

10. A person walking on or near the edge of a road should walk __________ (against, with) traffic.

11. When parking on a downhill grade your front wheels should be turned __________ (toward, away from) the curb. Uphill they should be turned __________ (toward, away from) the curb.

12. When carrying a lengthy object—pipe, two-by-four, etc.—by yourself, the object should be tilted so that the front end is __________ (up, down).

13. You are in a turn lane waiting to make a left turn. Your front wheels should be aimed __________ (left, straight ahead).

14. If you are trying to get out of a smoky room or building __________ (stay down close to the floor, stand up).

15. If your rear wheels start skidding off to the right, turn your steering wheel to the __________ (left, right) to correct the skid.

(Answers are on page 30)

Reprinted from Family Safety magazine, Fall 1973.

ANSWERS TO

WHAT'S UP?

1. **Right.** Straight ahead is a collision course. Trying to outguess the other driver by swerving left could be dangerous if he recovers at the last instant and instinctively veers back into his own lane.

2. **Toward.**

3. **Left. Right.** Traffic on your left crosses your path first.

4. **Pulled toward.** The pull against the fixed jaw forces the wrench onto the nut and it is less likely to slip.

5. **Right.** With traffic.

6. **Low.** Fog reflects light. With lights on high beam more light would be reflected and more glare would result.

7. **Farther back from.** A motorcycle can stop in a shorter distance than a car, so you'd need more stopping distance.

8. **Right.**

9. **Near the head.** If the thumb and finger are near the point they are easier to smash against the work if the nail slips.

10. **Against.**

11. **Toward. Away from.**

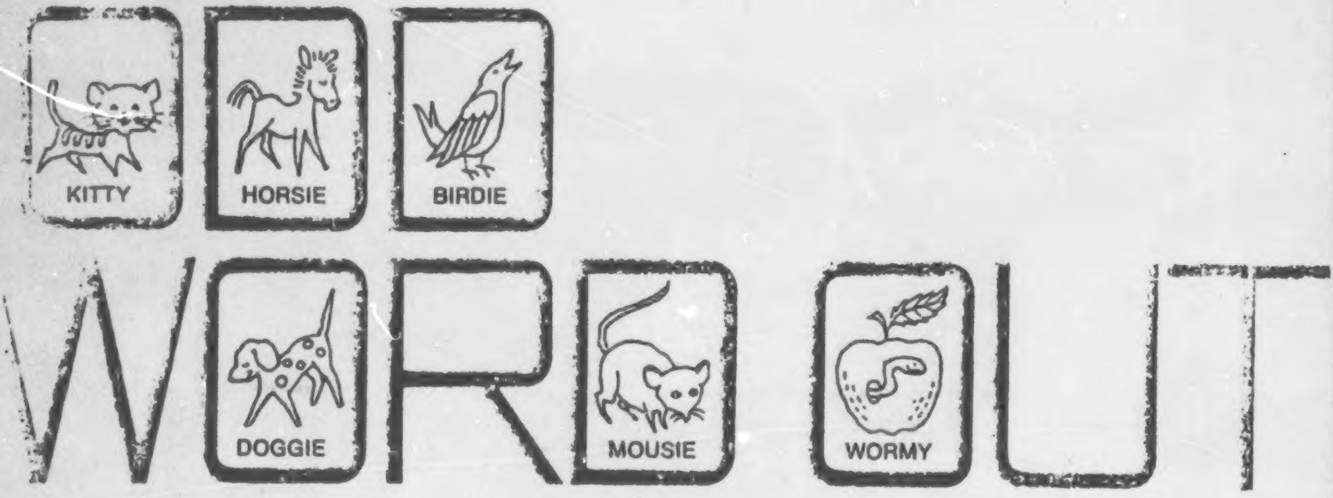
12. **Up.** The forward end is less likely to strike persons or objects.

13. **Straight ahead.** If they are turned left, a rear-end bump from another car could shove you into the path of oncoming traffic.

14. **Stay down close to the floor.**

15. **Right.**

ODD WORD OUT



by Tom Dodds

SUPPOSE you found a road map, a plastic spoon from a drive-in, some paper napkins, a couple of gas station charge receipts and your Aunt Tillie's upper plate in the glove compartment of your car.

Well, you'd expect to find all but one of those things. The choppers, however, are definitely out of place.

Now, what about this group of words: blue, yellow, red, cat, green? Blue, yellow, red and green are colors. Cat is the out-of-place item.

That's the idea of this quiz. In each group all the words or phrases except one have something in common safetywise. See if you can spot the out-of-place item.

This isn't an easy quiz. In fact, it's very tough, and it will take a little more time and thought than most quizzes.

1. Safety belt, shovel, hard hat, gloves, tetanus shot.

2. Oxygen, heat, fuel, smoke.

3. Traffic signal, traffic policeman, intersection, pavement markings, speed limit sign.

4. Bandage, artificial hand, cold water, splint, mouth-to-mouth resuscitation.

5. Tasteless, colorless, harmless, odorless.

6. Electric shaver, washing machine, air conditioner, table saw.

7. Curve, hill, one-way street, intersection.

8. Outdoors, indoors near an outside wall, near a window, in a car, in the basement.

9. Copperhead, cottonmouth, rough green, diamondback.

10. Leaky, bulging, foul-smelling, scratched.

11. Darkness, clear sky, bad pavement, rainstorm, highway construction.

12. Start directional signal, check oncoming traffic, get foot on brake, check to the rear, sound horn.

13. Top step of ladder, under a lone tree in an electrical storm, in flooded basement, near tombstone in cemetery.

14. Driving in the median strip, too close to car ahead, on expressway exit ramp, astraddle crosswalk at red light.

15. Snake, rabbit, squirrel, dog, bat.

16. Triangle, hexagon, diamond, circle, octagon, pentagon.

17. Red lettering on white, white lettering on red, black lettering on yellow, green lettering on yellow.

18. Boat operator, jogger, car driver, water skier.

19. Black on orange, diamond shaped, octagonal, black on yellow.

20. Driving behind another car on a rainy day, driving behind another car on a curve, driving behind a motorcycle, driving behind someone who appears to have been drinking. ☐

Reprinted from Family Safety magazine, Spring 1974.

Answers to ODD WORD OUT Quiz

1. All items but the *shovel* offer some form of protection.

2. *Smoke* is the out-of-place word. Oxygen, fuel and heat (sometimes referred to as the fire triangle) must be present before there can be fire.

3. All but *intersection* are involved in the regulation of traffic. A traffic signal and traffic policeman tell when to stop and go, pavement markings tell where to go and the speed limit sign tells how fast you can go.

4. All but *artificial hand* are elements used in first-aid situations. (cold water for burns).

5. Carbon monoxide is tasteless, colorless and odorless. It definitely isn't *harmless*.

6. All but the *electric shaver* should be grounded.

7. You can pass on a *one-way street*, not in the other situations.

8. *In the basement* (in the southwest corner) is the recommended place to be during a tornado. The other locations are considered hazardous.

9. All but the *rough green* are poisonous snakes.

10. Leaky, bulging and foul-smelling are signs of spoilage in canned foods. A *scratch* on a can does not connote danger.

11. All but *clear sky* are situations or conditions where the posted speed is not necessarily the safe speed. They are good reasons for slowing down.

12. All but *get foot on brake* are actions that should be taken preparatory to passing.

13. *Near tombstone in cemetery* is out of place. The others are dangerous places to be.

14. All but *on expressway exit ramp* are places you should not be.

15. All but the *snake* are warm-blooded animals that can have and transmit rabies.

16. All but *hexagon* are shapes of traffic signs.

17. All but green lettering on yellow describe traffic signs. (Red on white—yield, white on red—stop, black on yellow—most warning signs.)

18. It's advisable—the law in some areas—for people operating (or riding in) boats or cars or water skiing to wear some kind of protective device (safety belt-shoulder harness combination, life preserver or jacket). There's no such protective device for a *jogger*.

19. Only *octagonal* is not descriptive of warning signs.

20. Each situation except *driving behind another car on a curve* requires a greater following distance than under normal conditions.

RESOURCE LIST

ORGANIZATIONS

Aetna Casualty and Surety Company, Driver Education Services, 151 Farmington Avenue, Hartford, Connecticut 06115.

Allstate Insurance Company, 7770 Frontage Road, Skokie, Illinois 60076.

American Automobile Association, 1712 G Street NW., Washington, D.C. 20006.

American Automobile Association-North Carolina, Carolina Motor Club, Inc., 701-3 South Tryon St., P.O. Box 60, Charlotte, North Carolina 28202.

Bicycle Manufacturer's Association of America, 1101 15th Street NW., Suite 304, Washington, D.C. 20005.

National Bicycle Dealers Association, 29025 Euclid Avenue, Wickliffe, Ohio 44092.

National Education Association, American Association for Health, Physical Education and Recreation, 1201 16th Street NW., Washington, D.C. 20036.

National 4-H Service Committee, Inc., Program Services, 150 North Wacker Drive, Chicago, Illinois 60606.

National Safety Council, 425 North Michigan Avenue, Chicago, Illinois 60611.

North Carolina Department of Motor Vehicles, Traffic Safety Education Division, 1100 New Bern Avenue, Raleigh, North Carolina 27611.

North Carolina Department of Public Instruction, Education Building, Raleigh, North Carolina 27611.

North Carolina Department of Transportation, Bicycle Coordinator, P.O. Box 25201, Raleigh, North Carolina 27611 (for bikeways information).

North Carolina State University, Agricultural Extension Service, Department of Agricultural Information, Box 5037, Raleigh, North Carolina 27607.

Schwinn Bicycle Company, 1856 Kastner Avenue, Chicago, Illinois 60635.

University of North Carolina at Chapel Hill, Highway Safety Research Center, Craige Trailer Park, Chapel Hill, North Carolina 27514.

The Wheelmen, 6239 Anaujsta, Flint, Michigan 48507.

RESOURCE LIST - EIGHTH GRADE - PRE-DRIVER EDUCATION

HISTORY OF THE AUTOMOBILE

To help facilitate student or teacher research in the area of transportation, several texts concerned with the topic area are listed below.

Anderson, R. E. *The Story of the American Automobile*. (1950) It contains many interesting anecdotes about the motorcar. Excellent pictures, entertaining, and accurate as to fact.

Automobiles of America. The finest dictionary yet published on the motorcar. Wayne State University Press, Detroit, Michigan. ($1.95)

Barber, H. L. *Story of The Automobile - Its History and Development From 1760 to 1917*. Chicago: A. J. Munson & Company, 1917.

Cleveland, R. M., and S. T. Williamson. *The Road is Yours*. Possesses unusual pictures and the best year-by-year record diary of motorcar achievement to be found in any book.

Clymer, Floyd. *Those Wonderful Old Automobiles*. New York: Hononya Books, 1953.

Clymer, Floyd. *Treasury of Early American Automobiles*. Chicago: McGraw-Hill Book Company, Inc., 1950.

Crabb, Richard. *Birth of a Giant*. Philadelphia: Chilton Book Company, 1969.

Glasscock, C. B. *The Gasoline Age*. (1937) Most useful and interesting Glasscock talked with most of the founders before writing this book.

Glenn, Harold T. *Safe Living*. Bennett, 1960, 288p.

Harkins, Philip. *Road Race*. Crowell, 1953, 276p.

Hill, Frank E. *The Automobile*. Dodd, Mead, 1967, 212p.

Hyde, Margaret O. *Driving Today and Tomorrow*. McGraw-Hill, 1965, 143p.

Johnson, Annabel. *Count Me Gone*. Simon and Schuster, 1968, 188p.

Nevins, Allan, and Frank E. Hill. Ford: *The Times, the Man, the Company* (1954); *Ford: Expansion and Challenge 1915-1932* (1957); *Ford: Decline and Rebirth 1933-1962*. Classic literature on the motorcar will be found in these three volumes.

Niemeyer, G. A. *The Automotive Career of Ransom E. Olds*. (1963) Tells much of Olds not generally known before. The early pictures of Olds and his famous Curved-Dash Oldsmobile would make this book especially important.

Pound, Arthur. *The Turning Wheel*. (1934) Provides an excellent review of the events which led to the formation of General Motors and the firm's first 25 years.

Rae, John B. *The American Automobile*. (1965) Gives the best report on what the automobile has meant to American and the world.

Rae, John B. *American Automobile Manufacturers: The First Forty Years*. (1959)

Richards, William C. *The Last Billionaire*. (1948) The first book to be written on Henry Ford after his death, it is entertaining and presents the human side of the man who put America on wheels.

AUTOMOTIVE SAFETY DEVICES

FILMS

Another Step Forward. (1968, 16 mm, color, 11 min.) Film shows improvements in car safety since its creation, risks in normal and bad weather driving and improved controls. Available from Beam's Manufacturing Company, P.O. Box 762, Oklahoma City, Oklahoma 73101.

Automobile Crash Injury Research. (16 mm, b&w, 27 min.) Values of safety belts, new instrument panel designs, new types of padding for car interiors, other safety factors. Available from Michigan State University Instructional Media Center, East Lansing, Michigan 48926.

Eleven Together. (16 mm, color, 25 min.) An information film that describes in nontechnical language the results of 11 companies' efforts to reduce automobile-related air pollution. The film also refers to additional problems to be solved in order to meet the auto industry's objectives. Available from Ford Motor Company, Film Library, The American Road, Dearborn, Michigan 48121.

How and Why to Use Safety Belts. (1968, 16 mm, color, 8 min.) Film shows the importance of using safety belts and illustrates the various types of restraining devices and buckles. Available from American Safety Belt Council, 271 North Avenue, New Rochelle, N.Y. 10801.

In The Crash. (1970, color, 22 min.) Documents the need for crash-resistant cars as well as highways and roadways; Film Librarian, Jr. High, Employers Insurance of Wausau, 2000 Westwood Drive, Wausau, Wisconsin 54401. Also from A.A.A., Madison, Wisconsin.

UFO Unrestrained Flying Objects. (1968, 16 mm, color, 14 min.) Film shows what happens to the driver and passengers in a car accident when they are not wearing lap belts and shoulder belts. Available from General Motors Corp., Film Library, GM Building, Detroit, Michigan 48202.

The Traffic Snarl. (1966, 16 mm, b&w, 60 min.) A report concerning the congestion caused by the automobile in most of our cities and some examples of present and future means of coping with this traffic snarl. Present problems and plans for immediate relief are delineated through interviews with public officials and critics. Chicago's excellent commuter service and more futuristic solutions, such as the Starr car in Boston and a monorail in Pittsburgh, are also examined. Available from Indiana University, Audio-visual Center, Bloomington, Indiana 47401.

PAMPHLETS

Automobile Safety Belt Fact Book. National Highway Traffic Safety Administration, U.S. Dept. of Transportation, 400 Seventh Street, S.W., Washington, D.C. 20591.

Journal of Safety Research, quarterly. National Safety Council, 425 North Michigan Avenue, Chicago, Illinois 60611.

Passenger Safety. National Safety Council, 425 North Michigan Avenue, Chicago, Illinois 60611. ~~($ .06 each)~~

You're Putting Me On. National Safety Council, 425 North Michigan Avenue, Chicago, Illinois 60611.

HIGHWAY SIGNS, SIGNALS, AND MARKINGS

FILM

Signs and Lines. (1973, color, 10 1/2 min.) Documents new "international" traffic signs and pavement markings. Available from General Motors Corp., Public Relations Staff, 11-203 GM Building, Detroit, Michigan 48202.

PAMPHLETS

About the New Highway Signs, Signals and Markings. Available from Channing L. Bete Company, Inc., Greenfield, Massachusetts.

OTHER

Miniature Traffic Signs. Milton Bradley Company, Des Plaines, Illinois 60018.

Traffic Sign Bingo. Norbet Specialty Corp., New York, N.Y. 10032.

The Shape of Things To Come - Traffic Signs. Size 11" x 17", charge, #998. Looks Can't Kill But Failure to Look Can, charge, #980, Employers Insurance of Wausau, 200 Westwood Drive, Wausau, Wisconsin 54401.

TRIP PLANNING

SLIDES

Travel Time Safety, (1966, 2 x 2 slides, script, 10 min.) Sound tips on how to enjoy your motoring vacation: how to drive in mountains, fog, rural areas, strange cities. Stresses careful planning and how to meet emergencies along the way. Stock No. 176.11.

Available from National Safety Council, 425 North Michigan Avenue, Chicago, Illinois 60611.

EMERGENCY PROCEDURES

FILMS

The Difference. (1972, 16 mm, color, 15 min.) Too frequently accident-spectators assume that once help is called there's nothing to be done...that all is well. Broken bones and minor contusions are best left alone, but in situations where the victim is suffering from excessive bleeding, loss of breath or cardiac arrest, 3-5 minutes without assistance can lead to brain damage or even death. Available from Brentwood Productions, P.O. Box 49946, Los Angeles, California 90049.

Help Us. (1972, 16 mm, color, 16 min.) This film illustrates on-the-spot treatment of severe bleeding, broken limbs, lung puncture and unconsciousness. It also illustrates what every motorist can do to provide greater safety for himself, his passenger and other motorists. Available from National Fire Protection Association, 60 Batterymarch Street, Boston, Massachusetts 02110.

Light for Life. (1972, 16 mm, 15 min.) This film instructs the automobile operator in the step-by-step procedure of handling roadside emergencies safely and efficiently. Special emphasis has been placed on the need for warning others of presence on the roadside. Available from E. I. Dupont de Nemours & Company, Inc., 1007 Market Street, Wilmington, Delaware, 19898.

Unexpected Moment. (16 mm, 12 1/2 min.) What to do when you're first to arrive at the scene of an auto accident. Available from Creative Arts Studio, 2323 4th Street, NE., Washington, D.C. 20002

POWERED TWO-WHEELERS

FILMS

The Critical Hours. (1968, color, 24 min.) A group of young men learn the finer points of motorcycling. The film follows the young people through their introductory meetings, watches the development of their basic skills and techniques, and finally winds through the mountains with the boys as they complete a 200-mile road tour to Lake Arrowhead Scout Camp and back. Available from BSA, Inc., 634 Passaic Avenue, Nutley, New Jersey 07110.

Motorcycle Riding Tactics. (1971, color, 16 min.) Film uses UCLA experiments to demonstrate pertinent safety pointers to motorcyclists. Available from AIMS Instructional Media Services, Inc., P.O. Box 1010, Hollywood, California 90028.

The New Ride. (1972, color, 16 mm, 30 min.) Film illustrates many basic areas which are necessary to safe off-road minibike travel. Shows the proper training, attitude, and preparation necessary for safe minibike riding. Available from American Honda Motor Company, Inc., P.O. Box 50, 100 Alandra Boulevard, Gardena, California 90247.

Other films from American Honda:

Simulator Films - Series of 4 films, 40 minutes each, color, 16 mm, 1973.

Part #1 *The Residential Rider*. This film covers motorcycle travel in the residential area.

Part #2 *Meeting Traffic*. Motorcycle traffic safety.

Part #3 *Advanced Traffic*. Film for the experienced motorcycle rider.

Part #4 *Special Conditions*. Travel on motorcycle in special conditions.

Not So Easy. (1973, 16 mm, 17 min.) Demonstrates and discusses safety rules and precautions for the motorcyclist; includes the National Motorcycle Safety Text; will appeal to young people because it features famed motorcyclist Evel Knievel, and is narrated by Peter Fonda. Available from Film Fair Communications, 10900 Venture Boulevard, Studio City, California 91604.

Stone Age Rules of the Road. (color, 10 min.) Available from Motorcycle, Scooter, and Allied Trades Association, P.O. Box 231, Worthington, Ohio 43085.

FILMSTRIPS

Motorcycle Driver Education Film Loop Series. (8 mm film loops, color, $65.00) 5 film loops covering: (1) lane position (left tire track), (2) passing, (3) intersections, (4) following distance, (5) special hazards. Available from Film Loops, Inc., P.O. Box 2233, Princeton, New Jersey 08540.

On Two Wheels. (Series, 25 min. each, color, 35 mm strips, 1972) A series of three filmstrips explaining the special needs, requirements, and responsibilities of motorcycle riders and the hazards and emergency situations they may encounter. Available from Professional Arts, Inc., 1752 Parrott Drive, San Mateo, California 94402.

PAMPHLETS

Common Sense Tips for Safe Sportcycling. Information concerning free loan films from Yamaha International Corp., 7733 Telegraph Road, Montebello, California 90640.

Freedom Of The Road. Information concerning free loan films from U.S. Suzuki Motor Corp., 13767 Freeway Drive, Santa Fe Springs, California 90670.

The Invisible Vehicle. University of North Carolina, Highway Safety Research Center, Chapel Hill, North Carolina 27514.

Motorcycle Safety Foundation, Inc., Publication Service, 1001 Connecticut Avenue, NW. Washington, D.C. 20036.

Motorcycles. Safety Education Data Sheet #98, National Safety Council 425 North Michigan Avenue, Chicago, Illinois 60611. Stock No. 429.04-98.

BOOKS

Coombs, Charles. Motorcycling. William Morrow and Company, 1968.

Gault, William C. Two Wheeled Thunder. Dutton, 1962, 184pp.

Handbook for Motorcycle Operations, Motorcycle Driver's Education--Instructor's Guide. Montgomery Ward Automotive Department #61, 619 West Chicago Avenue, Chicago, Illinois 60607.

Navarra, John Gabriel. Wheels For Kids. Doubleday, 1973, 63 pp. ($4.95) Basic information on the working parts of the motorbike and safety points to learn and practice; well illustrated.

Richmond, Doug. All About Minibikes. H. P. Books, Tuscon, Arizona.

OTHER

Guide for Motorbike Driver Education Instructors. Motorbike Driver Education Instructor's Kit, Universal Underwriter's Insurance Company, 5115 Oak, Kansas City, Missouri 64100.

GETTING READY FOR THE ROAD

LEVEL D - GRADE 9

TABLE OF CONTENTS

Page

Driver Licensing

Unit Outline 344

I. Getting Your License 344

II. What Kind of License 348

III. The Purpose of Driver Licensing 354

The Highway Transportation System

Unit Outline 359

Unit Concepts:

I. Intro - The Highway Transportation System 360

II. The Environment - Roadway Types 363

III. The Vehicles - Special Characteristics 371

IV. The People - Three Types of Pedestrians 374

V. What Makes the System Go? - HTS Management 381

Driving Skills

Unit Outline 387

Unit Concepts:

I. Introduction to IPDE 388

II. Identifying 390

III. Predicting 398

IV. What Clues Help You Predict 402

V. Making Decisions 406

VI. Deciding at Intersections 410

VII. Right of Way Laws 412

VIII. Following Distances 416

TABLE OF CONTENTS (cont)

Page

IX. Execution 426
X. Culminating Activities 430

Self-Evaluation of Driving Attitudes

Teacher Information 443
Activities 445

Just For Fun

Resource Lists 468
Transportation 469
Driver's License 469
IPDE 469
Vision 470
Drinking and Driving - Drugs and Driving 471

LIST OF MASTERS

Page

1. Driver Characteristics 347
2-4 Recipiocity Charts 350-352
5. Women on Wheels vs Men on Wheels 356
6. The Nader Viewpoint 362
7. When Driving is Different 367
8. You be the Judge - Caulfield vs. Seeker 379
9. Identifying 393
10. Do the Eyes Have it? 394
11. Stopping Distance Chart 401
12. Predicting 405
13. Would You Rather Be 409
14-15 Right of Way Diagrams 414-415
16. Distance Chart 418
17. Speed Chart 419
18. Jury Duty - Hyatt vs Finch 422
19. Driving Habits 429
20. Six Ways to Get Away with Murder 432
21. Discussion Questions - IPDE 435
22. Who's Who? 439
23. Value Clarification Questions 447
24. Sure You Can Be Accident Prone 449
25. Safety Tidbits 454
26. Which Fact is Phony? 456
27. Word Play - Safety Acronyms 459
28. Crossword Puzzle - Automobile Parts 461
29. Word Find Pre-Driver's Ed 465

INTRODUCTION

This section deals directly with preparing students for driver training. The section is divided into subsections which are called units. Units simply designate a convenient grouping of content; the term is not intended to mean any more than that. The first resource unit presents the how's and why's of the driver licensing process. The second resource unit, The Highway Transportation System, provides the students with an insight into the driver's relationship to the total highway environment and some of the factors with which the driver must deal. The Driving Skills resource unit explores the driving task itself and suggests ways the students may begin preparing themselves for taking the wheel. In all these sections you will be giving the students a headstart on the vocabulary and the critical factors involved in driving. By delineating what a driver looks for and what it is called, the students' present experiences can be used more meaningfully when they start to drive.

Of course, a driver's attitudes and emotions are critical for responsible driving performance. Suggestions for exploration of these factors (to be used as a separate lesson or along with other units) are given in the unit on Self-Evaluation of Driving Attitudes.

Drug abuse--alcohol or otherwise--is a big factor in traffic accidents. However, most schools seem to be providing extensive alcohol and drug education already. Therefore, no specific material is provided here. If you are responsible for teaching drug education, you will certainly want to tie in those lessons with this unit.

DRIVING LICENSING

UNIT OUTLINE

Concepts	Goals
I. Getting Your License	Students will know the requirements for acquiring a driver license. Students will examine their attitudes toward driving.
II. What Kind of License	Students will identify the four types of N.C. licenses.
III. The Purpose of Driver Licensing	Students will understand the purposes of driver licensing.

CONCEPT I: GETTING YOUR LICENSE

You will soon be taking a giant step into the world--you'll be getting your driver's license. It is an exciting time and maybe a bit frightening. When you start to drive, you'll be taking your life in your hands--in more ways than one. You gain more freedom and with it more responsibility. How do you get that little piece of paper that means so much?

First of all, if you are under 18, you must complete a driver education course. Then you go to the nearest licensing station. Don't forget to bring your birth certificate and a parent: you must prove that you are 16, and you must have your parents sign a consent form. Then the patrol officer will check your vision and present you with a written test to check your knowledge of the Rules of the Road.

When you pass the written test, you can take the road test if you're confident of your driving skill after 6 hours of road work in driver education class. You and the patrol officer will buckle yourselves into the car and take a tour through traffic and you'll demonstrate your parking ability. But you don't have to take the road test that day. Most people feel they need more practice. If you have passed all requirements except for the road test, you can be issued a temporary learner's permit. This permit makes it legal to drive with a licensed driver beside you. So practice away and come back to take your test.

After you pass your road test, you plunk down $4.00 and you've earned your ticket into the highway system. It's an entry ticket only. If you want to stay in the game, you have to use your good sense and judgment and develop the skills you need to be a good driver.

Objectives	Activities
1. Students will identify the steps they must take to obtain a driver's license.	1. Invite a guest speaker, such as a license examiner or the local State Highway Patrol information officer to talk about young drivers and to demonstrate the license examination. If possible, arrange a visit to the license examination office. 2. Class discussion.
2. Students will examine their attitudes toward the qualities of a good driver.	3. You will find a list (p. 347) of 20 mental and physical characteristics that describe drivers. Have the students copy the list (or duplicate and distribute). Tell the students to-- a. circle six characteristics found in most drivers they know, b. underline the three qualities they have that will be their strongest points as drivers, and c. check the ten characteristics which would be most important to find in a good driver. Discuss the answers. There is no right or wrong answer. The purpose of the exercise is to examine the students' ideas about what makes a good driver.

DRIVER CHARACTERISTICS

- good vision
- brave
- careful
- even tempered
- good physical condition
- good judgment
- law-abiding
- good natured
- responsible
- cool
- sensitive
- smart
- efficient
- good hearing
- athletic
- patient
- considerate
- mechanically minded
- quick reactions
- easygoing

CONCEPT II: WHAT KIND OF LICENSE?

There are four types of driver's licenses:

1. The operator's license. This is the regular driver's license. To get one, you must be at least 16 and pass the written, vision, and road test. If you are 18 or younger, you must complete a driver education course.
2. The chauffeur's license. If you plan to make your living by driving a motor vehicle, you must have a chauffeur's license. To qualify you must be 18 or older and pass the three types of tests. School bus drivers do not have to have chauffeur's licenses, but they must be specially certified.
3. Temporary learners permit. Anyone who qualifies for an operator's license, but is not skilled enough to pass the road test can get a temporary learner's permit. To drive with this permit, you must be accompanied by a licensed operator or chauffeur.
4. A restricted instruction permit. This is issued to students in driver education who are 15-1/2 years old. It's only valid if the driver education instructor is sitting beside the student in the car.

Your driver's license will have to be renewed every 4 years (on your birthday). If you have no tickets or accidents, you won't even have to take the tests again.

A North Carolina license is valid in the other States, just as another State's license is legal in North Carolina. There are some exceptions because licensing ages vary from State to State. In North Carolina, 15-year-olds cannot drive even if they have licenses from their home States. Some States do not issue licenses until the person is 18. If you plan to drive out of State, it's a good idea to check with other States' police to see if your license will be valid. Note: On page 350, you will find a list of the requirements for State drivers licenses which can be used with class discussion, and a listing of restrictions on operating motor vehicles by juveniles pp. 351-352.

CONCEPT II: WHAT KIND OF LICENSE? (cont)

Objectives	Activities
1. The student will list the four types of N.C. licenses and the requirements of each.	1. Have the students search through the N.C. Vehicle Code to identify various types of licenses and requirements.
2. The student will demonstrate understanding of the concept of reciprocal licensing agreements between states.	2. Using the charts on pp. 350-352, have the students explore the different licensing requirements of the 50 states. Ask: Will your license be valid in other states? (Yes, except New York and Utah require that a driver be over 17.) Why is this necessary?

RESTRICTIONS ON THE OPERATION OF MOTOR VEHICLES BY JUVENILES

APPENDIX 2 TO TABLE DL-[illegible]
SHEET 1 OF [illegible]
STATUS AS OF JANUARY 1, [illegible]

STATE	MINIMUM AGE	KIND OF PERMIT	TIME OF USE	PLACE OF USE	OTHER RESTRICTIONS AND QUALIFICATIONS
California	14	Junior	Varies	Varies	Must be verified by school principal; may also be issued for use during family illness or financial hardship; cannot drive between 8 p.m. and 5 a.m.
Colorado	16	Minor	Anytime	Anywhere	Expires 20 days after 18th birthday, full examination required for provisional license.
	18	Provisional	Anytime	Anywhere	Expires 20 days after 20th birthday, full examination required for regular license.
Connecticut	16	Operator	Anytime	Anywhere	Applicants under 18 years of age may be licensed to drive only cars which are insured for at least $40,000 personal injury and $5,000 property damage, and must complete approved driver education course.
Hawaii	15	Special	Anytime	Anywhere	If a license issued to a person under 17 years old is revoked, it will not be reissued until he has reached 17 years of age.
Idaho	14	Restricted	Daylight	Anywhere	Applicants under 16 years of age are restricted to daytime driving.
Illinois	16	Driver	Except curfew hours	Anywhere	Applicants under 18 years of age are restricted to curfew hours, which are midnight to 6 a.m. Friday and Saturday and 11 p.m. to 6 a.m. Sunday through Thursday.
Indiana	16	Probationary	Anytime	Anywhere	All licenses held by 16-18 year olds are probationary and may be revoked upon conviction of a traffic violation or accident involving injury to persons or damage to property.
Iowa	14	Minors School	7 a.m.-6 p.m.	Home to school and return	Expires on 18th birthday or on issuance of temporary drivers permit.
	16	Temporary	Anytime	Anywhere	Required for any person eligible for a license on first application; valid for 1 year; cancelled upon conviction of a moving traffic violation.
Kansas	14	Restricted	7 a.m.-7 p.m.	Home to school and return	Also may be issued for performing agricultural errands for parent or guardian.
Louisiana	15	Restricted	5 a.m.-11 p.m.	Anywhere	All applicants under 17 years of age must have completed an approved driver education course (after the program is operating in each parish of the State).
Maine	15	School	School hours	Home to school and return	If no other means of transportation exists, and applicant has not completed a driver education course.
Massachusetts	16 1/2	Junior	5 a.m.-1 a.m.	Anywhere	All applicants under 18 years of age must be accompanied by parent or guardian between 1 a.m. and 5 a.m.
Michigan	14	Minor Restricted	As needed	As needed	Issued for transportation to school if no other means is available, or if family hardship exists in case of illness or disability, or to help with farming activities.
Minnesota	15	Restricted	Daylight hours	Farm area	Valid only within a 20-mile radius of the farm house.
	16	Provisional	5 a.m.-Midnight	Anywhere	All licenses issued to applicants under 18 years are provisional and expire on the 18th birthday; all provisional licenses issued prior to 8/1/73 expire on the 21st birthday. 16-year-olds may not drive between midnight and 5 a.m.
Nebraska	14	Limited	School hours	Home to school and return	Applicants must live at least 1 1/2 miles from school with no other transportation available.
Nevada	14	Restricted	School hours	Home to school and return	Valid for the school year only, for use over a prescribed route.
New Hampshire	16	Operator	School hours	Home to school and return	Applicant must be 16-18 years old, with no other means of transportation to school, who has not completed a driver education course.
New Jersey	16	Restricted	Anytime	Anywhere	Applicant must be engaged in agricultural pursuits.
New York	16	Class 6	5 a.m.-8 p.m.	As needed	Applicant may operate a vehicle alone at night only to attend school, and is not permitted to drive at any time in New York City; he may operate in Nassau County subject to restrictions specified in Commissioners regulations.

Prepared by U.S. Department of Transportation, FHWA, February 1974

ADMINISTRATION, TERMS, AND AGE REQUIREMENTS FOR STATE DRIVERS LICENSES

TABLE DL-[illegible]
STATUS AS OF JANUARY 1, 1974

STATE	STATE AGENCY ADMINISTERING LAW AND OFFICE OF ISSUE 1/	KINDS OF PERMITS AND LICENSES											
		LEARNERS PERMIT		TYPE OF DRIVER LICENSING SYSTEM 3/	OPERATORS LICENSES						CHAUFFEURS LICENSES		
		LENGTH OF TERM	MINIMUM AGE 2/		LENGTH OF TERM	RENEWAL DATE	MINIMUM AGE				LENGTH OF TERM	RENEWAL DATE	MINIMUM AGE 2/
							REGULAR 4/	JUVENILE 5/	MOTOR-CYCLE 6/	MOTOR SCOOTER 6/			
Alabama	Dept. of Public Safety	7/ 14th birthday/30 Days	7/ 15/16	Operator	2 Years	Birthday	16	-	-	16	Not Required	-	-
Alaska	Dept. of Public Safety	6 Months	14	Operator	3 Years	Birthday	16	-	-	14	8/ 1 Year	September 1	19
Arizona	State Highway Dept., Motor Vehicle Div.	5 Months	15 yrs. 7 Mo.	Operator/Chauffeur	3 Years	Birthday	16	-	16	-	3 Years	Birthday	18
Arkansas	Dept. of Finance and Administration, Office of Driver Services	60 Days	14	Operator/Chauffeur	2 Years	Birth Month	16		16	13	8/ 1 Year	Birth Month	18-21
California	Business and Transportation Agency, Dept. of Motor Vehicles	1 Year	15 1/2-17 1/2	Classified	3 & 4 Years	Birthday	16-18	16	16	16	See Appendix 1		
Colorado	Dept. of Revenue, Motor Vehicle Div.	120 Days	15 1/2-15 3/4	Classified([illegible])	3 Years	Birthday	21	16	16	16	See Appendix 1		
Connecticut	Dept. of Motor Vehicles	60 Days (M'cycle only)	16	Classified	2 Years	Birth Month	*16-18	-	16	16	See Appendix 1		
Delaware	Motor Vehicle Div.	60 Days	16	Classified	9/ 4 Years	Birthday	16-18	-	16	16	See Appendix 1		
Florida	Dept. of Highway Safety and Motor Vehicles, Div. of Driver Licenses	4 Years	15	Operator/Chauffeur	4 Years	Birth Month	16-18	-	16	15	4 Years	Birth Month	18
Georgia	Dept. of Public Safety	1 Year	15	Classified	10/ 4 Years	Birthday	16	-	16	16	See Appendix 1		
Hawaii	County Police Dept.	90 Days	15	Classified	11/ 2 & 4 Years	Birthday	*15	-	15	15	See Appendix 1		
Idaho	Dept. of Law Enforcement	120 Days	14-16	Operator/Chauffeur	3 Years	Birthday	16	14	-	-	3 Years	Birthday	18
Illinois	Dept. of Motor Vehicles, Drivers License Div.	1 Year	15-18	Classified	3 Years	Birthday	*16-18	-	18	16	See Appendix 1		
Indiana	Bureau of Motor Vehicles	1 Year	15-18	Operator/Chauffeur	4 Years	Birth Month	*16-21	-	-	-	1 Year	Birth Month	18-21
Iowa	Dept. of Public Safety, Drivers License & Safety Responsibility Div.	2 Years	14	Operator/Chauffeur	12/ 2 & 4 Years	Birthday	*16-18	16	16	16	12/ 2 & 4 Years	Birthday	18
Kansas	Dept. of Revenue, Div. of Vehicles, Motor Vehicle Dept.	6 Months	14	Operator/Chauffeur	4 Years	Birthday	16	14	14	14	8/ 4 Years	Birthday	18-21
Kentucky	Dept. of Transportation, Bureau of Vehicle Regulations, Div. of Driver Licensing	60 Days	16	Operator/Chauffeur	2 Years	Birth Month	16	-	16	16	1 Year	January 1	18-21
Louisiana	Dept. of Public Safety, Drivers License Div.	2 Years	15	Classified	2 Years	Birthday	17	15	15	15	See Appendix 1		
Maine	Motor Vehicle Div.	1 Year	15-17	Classified	2 Years	Birthday	15-17	15	16	16	See Appendix 1		
Maryland	Motor Vehicle Administration	90 Days	16-18	Classified	2 Years	Birthday	16-18	-	16	16	See Appendix 1		
Massachusetts	Registry of Motor Vehicles	1 Year (M'cycle 6 mo.)	16	Classified	4 Years	Birthday	18	16 1/2	16 1/2	16 1/2	See Appendix 1		
Michigan	Dept. of State	120 Days	16	Operator/Chauffeur	3 Years	Birthday	16-18	14	16	15	1 Year (Original) 13/ 3 Years (Renewal)	Birthday	18-21
Minnesota	Dept. of Public Safety, Driver License Div.	1 Year	15-16	Classified	4 Years	Birthday	16-18	15	16-18	16-18	See Appendix 1		
Mississippi	Dept. of Public Safety	60 Days	15	Operator/Chauffeur	2 Years	Birth Month	15	-	15	15	2 Years	Birth Month	17
Missouri	Dept. of Revenue, Driver License Unit	60 Days	15-16	Operator/Chauffeur	3 Years	Issuance	16	-	16	16	3 Years	Issuance	18-21
Montana	Highway Patrol	6 Months	15-16	Operator/Chauffeur	4 Years	Birthday	15-16	-	-	-	4 Years	Birthday	18
Nebraska	Dept. of Motor Vehicles	1 Year	14-15	Operator	4 Years	Birthday	16	14	16	16	Not Required	-	-
Nevada	Dept. of Motor Vehicles, Drivers License Div.	6 Months	15 1/2	Classified	4 Years	Birthday	16	14	16	16	See Appendix 1		
New Hampshire	Dept. of Safety, Div. of Motor Vehicles	14/ [illegible] Term	15	Classified	4 Years	Birthday	16-18	16	16	16	See Appendix 1		
New Jersey	Div. of Motor Vehicles, Inspector Force	[illegible] Days	17	Operator/Chauffeur	1 or 3 Years	Issuance	17	16	17	17	1 Year	15/ Indefinite	21
New Mexico	Dept. of Motor Vehicles	60 Days	15 Yrs.	Operator/Chauffeur	2 Years	Birth Month	15-16	-	16	13	1 Year	Birth Month	18
New York	Dept. of Motor Vehicles	1 Year	16-18	Classified	3 Years	Issuance	17-18	16	16	16	See Appendix 1		
North Carolina	Dept. of Motor Vehicles	6 Months	15	Operator/Chauffeur	4 Years	Birthday	16-18	-	-	-	2 Years	Birthday	18
North Dakota	State Highway Dept., Safety Responsibility Div.	6 Months	14	Classified	2 Years	Birth Month	16	14	16	16	See Appendix 1		
Ohio	Bureau of Motor Vehicles	6 Months	16	Operator/Chauffeur	4 Years	Birthday	16-18	14	16	16	4 Years	Birthday	18
Oklahoma	Dept. of Public Safety, Driver License Div.	2 Years	15 1/2-16	Operator/Chauffeur	2 Years	Birth Month	16	-	-	14	2 Years	Birth Month	18-21
Oregon	Dept. of Transportation, Motor Vehicles Div.	1 Year	15	Operator/Chauffeur	2 Years	Birthday	16	14	16	16	2 Years	Birthday	18-21
Pennsylvania	Dept. of Transportation	90 Days	16	Operator	2 Years	Birth Month	*17-18	16	16	16	8/ 1 Year	(8/)	21
Rhode Island	Dept. of Transportation	90 Days	16	Classified	2 Years	Birthday	16-18	-	16	16	See Appendix 1		
South Carolina	State Highway Dept., Motor Vehicle Div.	6 Months	15	Operator	4 Years	Birthday	16	15	16	15	16/ 1 Year	January 1	18
South Dakota	Dept. of Motor Vehicles	3 Months	16	Operator	4 Years	Birthday	16	14	16	14	Not Required	-	-
Tennessee	Dept. of Safety	90 Days	16	Operator/Chauffeur	2 Years	Birthday	16	14	16	14	2 Years	Birthday	18
Texas	Dept. of Public Safety	1 Year	15-18	Operator/Chauffeur	4 Years	Birthday	16-18	15	16	13	2 Years	Birthday	17-18
Utah	Dept. of Public Safety, Driver License Div.	6 Months	16-17	Classified/[illegible]	4 Years	Birthday	16-17	-	16	16	See Appendix 1		
Vermont	Dept. of Motor Vehicles	1 Year	15	Operator	2 Years	Birthday	18	16	16	16	(8/)	(8/)	18
Virginia	Div. of Motor Vehicles	6 Months	15 Yrs. 8 Mo.	Classified	4 Years	Birth Month	16-18	-	16	16	See Appendix 1		
Washington	Dept. of Motor Vehicles	6 Months	15-15 1/2	Classified	2 Years	Birthday	*16-18	-	16	16	See Appendix 1		
West Virginia	Dept. of Motor Vehicles	60 Days	16	Operator/Chauffeur	4 Years	Issuance	16-18	-	-	-	1 Year	Issuance	18
Wisconsin	Dept. of Transportation, Div. of Motor Vehicles	6 Months	14-15 1/2-16	Operator/Chauffeur	2 Years	Birthday	16-18	14	16	16	8/ 1 Year	Birthday	18
Wyoming	Dept. of Revenue and Taxation	1 Year	15	Classified	3 Years	Birthday	16	14	16	16	See Appendix 1		
Dist. of Col.	Dept. of Motor Vehicles	60 Days	16	Operator	4 Years	Issuance	18	16	16	16	Not Required	-	-

1/ See Table DL-182 for State agency responsible for conducting examination.

2/ Where more than one age is shown for a State the lower age (or ages) is qualified by certain restrictions, such as completion of driver training courses, times of operation, type of operation, proof of necessity in hardship cases, and type of vehicle to be operated.

3/ See Appendix 1 for classes and kinds of licenses.

4/ The ages given are for the unrestricted operation of a private passenger car. When 2 ages are shown a drivers license may be issued to an applicant of the lower age if he has completed an approved driver education course. For States with an asterisk, see Appendix 2 for further qualifications.

5/ See Appendix 2 for special requirements and restrictions for juvenile drivers.

6/ A special examination is required and a special license (or endorsement) is issued in all States showing minimum age. States with no entries have no special provisions or age requirements for the operation of motorcycles or motor scooters but an operator must have a regular driver license. In this table, a motor scooter has a motor rated for 5 brake horsepower or less.

7/ Valid for 12 months if purchased at age 15, and only 1 month if purchased at age 16 or over.

8/ A special license is required for school bus operators in Alaska. Only in Arkansas and Delaware a special school bus operators license is required in addition to the chauffeurs license; there is no fee charged in Delaware but the license must be renewed annually. A special chauffeurs license is issued for school bus drivers in Kansas. Pennsylvania does not require renewal of the school bus license, but the holder must pass a physical examination annually and a law knowledge test every 3 years. Vermont requires a school bus endorsement to the operators license. Wisconsin requires the school bus license to be renewed every 2 years.

9/ An indefinite term license is issued for drivers meeting specified requirements, but a reexamination is required every - years. [illegible] drivers licenses are issued annually, and expire May 31.

10/ A free drivers license is issued to veterans who have entered the Armed Forces as a resident of Georgia, and is valid for life unless cancelled, suspended, or revoked.

11/ Drivers licenses issued to applicants 15-24 years old, and 65 years and over, are valid for 2 years; those issued to 25-64 year-olds are valid for 4 years.

12/ Two years for persons under 21 and over 65 years old; 4 years mandatory for 21-64 year-olds.

13/ Persons age 60 and over have the option to renew chauffeurs license annually unless it has been previously suspended or revoked.

14/ Restricted instruction permit for students taking driver training program.

15/ For-hire bus operators license is issued for an indefinite period, but evidence of physical fitness, good character, and experience must be furnished each 12 months.

16/ This is the equivalent of a chauffeurs license in other States, even though it is issued by the Public Service Commission.

Prepared by U.S. Department of Transportation, FHWA, February, 1974

RESTRICTIONS ON THE OPERATION OF MOTOR VEHICLES BY JUVENILES

APPENDIX 2 TO TABLE DL-101
SHEET 2 OF 2
STATUS AS OF JANUARY 1, 1974

STATE	MINIMUM AGE	KIND OF PERMIT	TIME OF USE	PLACE OF USE	OTHER RESTRICTIONS AND QUALIFICATIONS
North Dakota	14	Provisional	As needed	As needed	Necessity must be shown by parent or guardian to attend school, work, or business of parent. Persons under 16 years may operate automobile only of parent or guardian, and may not operate a motorcycle, commercial truck, motor bus, or taxicab.
Ohio	14	Restricted	Daylight hours	As needed	Issued only to relieve a hardship.
Oregon	14	Emergency	As needed	As needed	Special permit may be granted to drive over certain designated routes and for specific purposes when Division is satisfied an emergency exists, must be approved by county sheriff, county judge and chief of police.
	14	Student	School hours	Home to school and return	Issued only to attend school, if no other means of transportation is available, must be approved by school principal, county sheriff, and county judge.
Pennsylvania	16	Junior	5 a.m.-Midnight	Anywhere	Becomes regular license at age of 18.
South Carolina	15	Special Restricted	6 a.m.-6 p.m.	Anywhere	No time restriction when operating farm equipment and engaged in agricultural pursuits. Expires on 16th birthday.
South Dakota	14	Restricted	6 a.m.-7 p.m.	50-Mile radius	Applicant may operate highway-type motor vehicles of not more than 20,000 pounds g.v.w. within a 50-mile radius of his residence.
Tennessee	14	Limited	Daylight hours	As needed	Restricted to driving to school, church, and grocery.
Texas	15	Restricted	As needed	As needed	Special hardship license may be issued in emergency without driver education. All licenses issued to persons under 18 years are provisional until age 18.
Vermont	16	Junior	Anytime	Anywhere	Applicant must have passed a Driver Education and Training Course, and he may not operate a motor vehicle in the course of his employment, for compensation, or carry persons for hire. Licenses issued to persons under 18 years of age are provisional.
Washington	-	Agricultural	As needed	Farm-home area	No minimum age, under 18 years. May operate motor vehicle under 20,000 pounds g.v.w. within restricted farming locality. Issued for 1 year or until 18 years old.
Wisconsin	14	Restricted	Daylight hours	As needed	Necessity must be shown by parent or guardian to attend school, work, or business of parent. Persons under 16 years may operate automobile only of parent or guardian, and may not operate a commercial truck, motor bus, or taxicab.
Wyoming	14	Restricted	5 a.m. - 7 p.m.	50-mile radius	Issued only upon Departmental approval of notarized statement indicating situation to be an extreme hardship. Expires on 16th birthday. Automatically revoked upon second conviction of a moving traffic violation.
Dist. of Col.	16	Restricted	Anytime	Anywhere	May operate pleasure vehicles only, not for compensation until 18 years old.

Prepared by U.S. Dept. of Transportation, FHWA, February, 1974

CONCEPT III: THE PURPOSE OF DRIVER LICENSING

Today there are millions of vehicles on the road. North Carolinians drive billions of kilometers a year. Licensing those drivers is a step toward protecting all of us from people who are not physically or mentally capable of driving safely. Driver licensing is not foolproof--the program can't separate the mature drivers from the immature or emotionally disturbed. However, you are assured that the drivers you meet are not physically handicapped or severely mentally disturbed in a way that would hamper driving, and that they know basically how to handle a car.

There is another advantage to the driver licensing program. When you have your picture snapped and your license made, your vital statistics are fed into a huge computer in Raleigh along with all the other drivers in the State. The driver's record file provides valuable information to traffic engineers, enforcement, and judicial agencies. They can keep track of drivers with an excessive amount of accidents and traffic violations in order to revoke (take away) licenses of drivers who have proven themselves hazardous to others on the road. The States exchange information so that the authorities can act on country-wide records.

Driver license records are also used to pinpoint widespread accident problems so that researchers and scientists can try to solve them.

CONCEPT III: THE PURPOSE OF DRIVER LICENSING (cont)

Objectives	Activities
Students will list or understand the purposes of driver licensing.	1. Is a driver's license one of the rights included in the "pursuit of happiness" clause of the Constitution? Or is the State justified in granting licenses in order to protect society? Conduct a class debate on the topic, A Driver's License - Right vs. Privilege. 2. Use the article on page 356, "Women on Wheels vs. Men on Wheels," to illustrate the use of driver license records for research purposes. Ask: "Does this research report tell you anything about yourself? How could you (or traffic safety specialists) use this information?"

WOMEN ON WHEELS VERSUS MEN ON WHEELS

Are women or men better drivers? This question was probably raised the day the wheel was invented. Today, researchers are using driver licensing and accident records to try and find an answer.

It is no simple task. It's a fact that men have a little over twice as many accidents as women. However, men also drive more than women. The more you drive, the greater the chance that you will be involved in an accident. This is called "exposure." The greater the exposure, the more opportunity there is for an accident. Surveys which use names from driver licensing records have shown varying results; but, on the whole, men drive about twice as many kilometers as women. When you take exposure into consideration, men and women would have about the same number of accidents if they drove the same number of kilometers.

So the researchers dug a little deeper. Is there anything different about why, when, or where men and women drive? Yes, indeed. More men travel for business purposes. So the overall picture shows that men make longer trips and drive more on expressways and rural roads. Women are more likely to drive in the city and to have young children in the car.

How about the kinds of accidents that men and women have? Do they differ? Again, the answer is "yes." Accident files and driver violation files were examined. Men were likely to be speeding, following too closely, taking high risks in passing, driving drunk, or other reckless driving. Women, on the other hand, fail to yield right-of-way and ignore signs and turning laws. In other words, men tend to think that they or their cars can do more than they can. Women tend to concentrate on their own path of travel without considering other people.

Where do you fit in? Do you match the general picture? Or are you different?

Adapted from Are Men or Women Better Drivers? by Kathleen Weber. The HIT Lab Report vol. 5, no. 5. Ann Arbor, Michigan: University of Michigan Highway Safety Research Institute, January 1975.

THE HIGHWAY TRANSPORTATION SYSTEM

UNIT OUTLINE

Concepts	Goals
I. The Highway Transportation System	Students will understand the interrelationship of people and vehicles with the traffic environment.
II. The Environment - Roadway Types	Students will understand the challenges inherent in the different types of roadways.
III. The Vehicles - Special Characteristics	Students will understand the characteristics of different types of vehicles and how those characteristics affect the driver.
IV. The People - Three Types of Pedestrians	Students will understand the characteristics of pedestrian groups and how they affect the driver.
V. What Makes the System Go? - HTS Management	Students will know the functions of various management components of the highway transportation system.

CONCEPT I: THE HIGHWAY TRANSPORTATION SYSTEM

A system is a group of items working together for a common task. On the highway, people, vehicles, and the environment work together to move people and goods. This relationship is called the Highway Transportation System (HTS). You became a member of the HTS when you first took a ride in a car.

It is important that the HTS move people and goods as fast and as economically as possible. This cannot happen if an accident occurs. People are the most critical part of the HTS, because they control the safety of the system. You, as a driver, pedestrian, or cyclist, can think critically, be flexible, and react or adjust to existing conditions of vehicles, roadways, and environment.

The remainder of this section will explore information you will need as a driver to operate safely in the HTS.

CONCEPT I: THE HIGHWAY TRANSPORTATION SYSTEM (cont)

Objectives	Activities
1. Students will define the term "system."	1. Have the students identify a system they are familiar with (stereo system, school system) and explain why it is a system. 2. Have the students research the "Rube Goldberg" systems. Rube Goldberg: His Life and Work by Peter Marzio (Harpers and Row, 1974) is an excellent reference. Mr. Goldberg had many comments on the effects of automobiles on Americans which the students can enjoy.
2. Students will define the Highway Transportation System and explain the relationship of the three elements.	3. Conduct a class discussion of the importance and relationships between the elements of the HTS (people-vehicle-environment). Which element is the most important? Use the article on page 362, quoting Ralph Nader to spark discussion on the most important element as far as safety is concerned. Break down the elements even further (people = auto drivers, truck driver, etc., pedestrians, bicyclists). Ask: "Do you think any of these people have more rights than others? Should the system be designed to be more easily used by drivers or pedestrians or bicyclists?"

THE NADER VIEWPOINT - UNSAFE AT ANY SPEED

An alternative--or supplement--to strict legislation and enforcement has been advocated by some consumer protection groups, the most well known of which is directed by Ralph Nader. Nader's hypothesis, in essence, is that the responsibility for highway safety lies with the automobile industry, not with the driver. His basic assumption is that:

> The first-rate accident research that is being done in this country, backed mainly be Federal funds, is producing mounting evidence that the more that is known about human behavior, the more fundamental solutions will be in the engineering of the highway transport system. The vehicle is the basic unit of that system; the driver's adequacy is a function of his vehicle's adequacy.

According to Nader, the apathy of the public and political institutions is to blame for not encouraging increased automotive traffic safety. The automotive industry's actions in opposing improved design of vehicles must come under attack from the public sector before we will see significant decline in the number of automobile accidents and fatalities.

However, even the safest vehicle in the unsafe hands of the drunk or enraged, the overly tired, the underskilled or the tense driver is a potentially death-producing force.[14]

CONCEPT II: THE ENVIRONMENT - ROADWAY TYPES

Urban driving places many demands on the driver. Constant attention to the traffic environment is needed because of the many pedestrians, traffic signals, special markings, and vehicles. Visual alertness is about three times more demanding on a driver traveling at 30 kilometers per hour (20 mph) in the city than one moving at 95 kilometers per hour (60 mph) on an open road.

In residential areas, the driver should be alert for pedestrians, especially children, and for bicyclists. In commercial areas the driver must also watch for pedestrians, especially during rush hours. Drivers should try to minimize distractions in the car, such as loud radio music or conversations with passengers, and they should not allow themselves to be distracted by anything on the sidewalks not relevant to the driving task.

Traffic controls demand the attention of urban drivers. Drivers must look for signs and pavement marks restricting lane use, turning, and direction of movement. Drivers must be alert for special regulations which are in effect only during rush hours--such as one-way streets and lane use restrictions. Drivers should match their speeds with the progressive traffic signal patterns to avoid speeding up and sudden stops. Sudden stops invite rear-end collisions, extremely common urban accidents.

In open country or mountainous terrain, drivers must be especially careful to remain alert and not to succumb to road hypnosis resulting from monotony. Drivers should reduce speeds on winding or narrow roads and steer near the right of the roadway since oncoming vehicles may be blown into the car's lane by strong wind or may drift into the lane on curves. Slow down and watch at intersections. Signalized intersections on a two-lane highway have particularly high potentials for accidents. The more signals and the more median openings there are on a multilane highway, the more likely accidents are to occur.

When driving on rural highways, adjust speed to poor road surfaces, hills, sharp curves, unmarked intersections and visual obstructions like bushes, trees, and roadside structures. Watch for pedestrians or animals hidden behind obstructions and for slow-moving vehicles such as farm machinery.

On expressways designed to facilitate high-speed travel most accidents result from cars moving too fast for conditions. Drivers should adjust speeds according to the same rules they use on other roadways. Slow down in wet weather. Move with the traffic. Speed differences in traffic tend to create accident situations.

Expressway accidents are likely to occur at entrances and exits. Move to the left lane when passing entrances and exits. You will facilitate entrances on the expressway and reduce chances for rear-end collisions if you do not have to slow down for exiting vehicles. Maintain long following distances and be alert to changes in traffic. About half of expressway accidents are rear-end collisions. About a fourth are caused by improper lane changes. Many are caused when drivers are momentarily distracted.

CONCEPT II: THE ENVIRONMENT - ROADWAY TYPES (cont)

Objectives	Activities
1. Students will list the differences in driving on urban streets, rural roads, and expressways.	1. Discuss the differences in driving on the three major types of roadways. Which type of roadway is the student most likely to drive on? Develop a checklist of things to be alert for on each type of roadway. Which type of roadway presents the most challenge? See p. 367 for more detailed information. 2. Using a community map, have the students classify local streets and highways as two-lane, multilane, and limited access. Have them contact local police and/or collect newspaper clippings to determine where most accidents occur. 3. Divide the class into two groups. Have the members of one group select and analyze 1 kilometer (0.6 mile) of urban street, as a passenger in a vehicle. They should count the number of pedestrians, bicyclists, other vehicles, intersections, hazards, and traffic controls they see. Have members of the other group do a similar analysis of 1 kilometer (0.6 mile) of rural

CONCEPT #1: THE ENVIRONMENT - ROADWAY TYPES (cont)

Objectives	Activities
	road. Compare the allies from both groups. What conclusions can you make about the differences in urban and rural driving? Why are there more fatalities on rural roads in North Carolina but more injury-producing accidents on urban streets? (High speeds are one primary cause.)

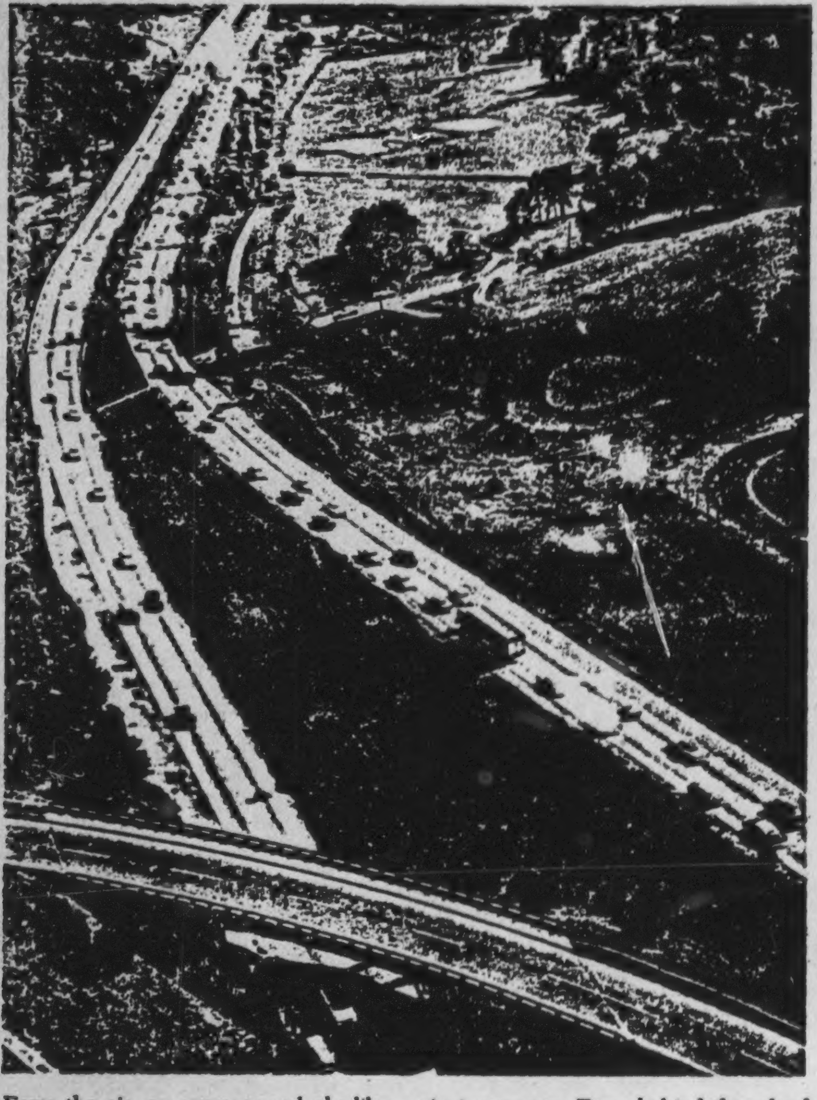
When Driving Is Different

by Dennis Boy

A VACATION trip by car is a great way to get away from it all. But, for a motorist, getting away from it all can mean getting away from the familiar and into an unfamiliar—and therefore unsafe—driving environment.

An urban driver freezes up at the wheel when a four-legged pedestrian sprouts antlers and jumps in front of his car; a rural driver panics in the multi-lane welter of "One Way," "No Left Turn," "Do Not Enter" city traffic.

Whenever you take a motorist from his normal environment, his reactions are apt to be a little less than automatic and his driving correspondingly more dangerous. Here are a few things to know and expect when vacationing in those less-than-familiar surroundings.



From the air, an expressway looks like a giant conveyor. From behind the wheel of a car, it can be a bore, lulling the unwary into highway inattention.

INTERSTATE EXPRESSWAYS

The first thing you must do about an expressway is get on it. A TV comedian once advised that the trick is to be going fast enough at the bottom of the entrance ramp to outrun anything that would otherwise run over you. There is some truth in that because you had better have most of your accelerating done before you pull in front of anything doing legal freeway speed. The idea is to merge into traffic without disrupting it.

Once on, perhaps the greatest danger is being lulled into semiconscious driving. The human mind stays alert through alarms and challenges that require constant decision-making. Because the modern expressway lacks most of the roadside threats that ordinarily keep the mind alert, it begins to run out of decisions to make and it slowly drops its guard. The unsuspecting driver may find himself running off the road, wandering into another lane, or even ramming into somebody in his own lane.

If you find yourself drifting away from the driving task, remember the easiest way to get rid of temptation is to give in to it. Pull off into a rest area for exercise and refreshment—maybe even a nap.

If you must eat, avoid starches and fats. Light snacks will do the job until you settle down for a proper rest. Heavy foods draw blood to the digestive area—the same blood that is needed to keep the mind alert.

Foresight is a life-saving characteristic of the expressway driver. Watch your fuel gauge; never drop below a quarter-full tank. Gas stops may be far apart or closed at night. Stalls on a high-speed road, especially after dark, can be hazardous.

Be ready for your exit, too, so you aren't tempted into impulsive, last-

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minute maneuvers. Study a map ahead of time, and memorize one or two exits ahead of yours as an early warning. If you miss an exit, *never* back up—go on to the next one.

Summer rains can be treacherous on an expressway because of higher speeds. The most dangerous time is right after the rain begins. Other drivers may slow down without warning, visibility drops, windows tend to fog up, attention is diverted from the road to instruments and switches, and the rain itself combines with oily deposits to make the road slippery.

Your first reaction should be to slow down. That not only increases the margin of safety between you and the driver ahead, but it also allows the spray thrown up by his wheels to settle on something other than your windshield.

CITY DRIVING

When entering a city street after expressway driving, make a frequent check on your speed. Several hours of high-speed driving distorts judgment, and what seems to be 30 mph may be closer to 50.

Once in the city or town, stay with the flow of traffic. If the speed limit is posted as 45 but everyone else is doing 30, give up your "right" to do 45.

The stranger to city driving may feel that he suddenly has been dumped into the middle of a Keystone Cop comedy—only it isn't funny! The bustle and noise, myriad signs and signals, and scurrying pedestrians can be confusing if not downright frightening.

According to studies, a driver deals with 300 traffic situations per mile in city driving—three times as many as in rural areas—and one out of 10 of these require special action.

So keep your speed down so you have time to comprehend the many details, allow enough following distance to see and react, use patience and don't compete.

Avoid rush hours. Try to plan your trip to eliminate travel when people are going to or from work. Even the busiest city traffic dwindles to nothing on a Sunday morning.

If you are caught in stop-and-go traffic on a hot summer day, shift into neutral at every stop and fast-idle the engine to prevent overheating and vapor lock. A stall in heavy traffic can be a harrowing and risky experience.

A driver used to quiet country roads may freeze up or panic in the confusion of the big city mix of car and pedestrian traffic.

RURAL DRIVING

Think ahead. Access to rural roads is less controlled than access to expressways, and rural roads usually get less money for maintenance than roads that carry more traffic.

A pothole, deer or tractor is suddenly "there" and you are on it, over it or through it before you even have a chance to get on the brake.

The danger itself is subtle. The distance a vehicle travels after the brakes are applied increases as the square of its speed. Thus a car doing 60 mph will travel nine times as far as a car doing 20 mph after the brakes are set, and it is sobering to note that two out of three traffic fatalities occur on rural roads even though they carry less traffic than urban roads.

To pass a car on a two-lane highway you have to cross momentarily into the opposing lane. Obviously, you want to spend as little time there as possible. So when you plan to pass a slower moving vehicle, stay back far enough so that the vehicle in front doesn't block your vision of the passing lane.

When an opening presents itself, accelerate *in your own lane* and swing out only as you approach the vehicle ahead.

Once past, return to your original lane without cutting off the car you have just overtaken.

This method provides constant vision of the passing lane and reduces your time in it. Too many drivers tailgate the vehicle they want to pass and resort to dangerous "peek-a-boo" tactics to determine if the way is clear. If it isn't, they run the risk of a collision; if it is clear, the passing itself is dangerously sluggish and time-consuming.

If you are the vehicle being passed on a two-lane highway, never increase speed. If you see an oncoming car may make the pass touch-and-go, slow down. Your action will cut the passing time and increase your own safety.

Of course, all the traditional rules still hold true: Don't pass on hills, intersections, curves or wherever the lane markings forbid you to do so.

MOUNTAIN DRIVING

Most mountain driving is rural driving and most of the rural cautions apply. The art of going up and down, however, has some special techniques of its own.

The best way to get the extra power you need uphill is to shift into a lower gear before you have lost your momentum. If your speed falls off even though you try to accelerate, you know you have been in the wrong gear too long.

Even with an automatic transmission it's best to downshift manually. Downshifting is even more important if you have a compact car with a less powerful engine.

Hypoxia (oxygen shortage) occurs in high altitudes such as those encountered in the Rocky Mountains. Symptoms are deeper breathing, faster pulse, hand tremor, slight impairment of vision, sleepiness and headache.

The body will normally adapt to hypoxia, and the best thing to do if you feel the symptoms is to stop the car and see if they go away. If they don't, have somebody else take you back down the mountain.

Cars also suffer from thinner air and lack of oxygen. Less oxygen means less combustion means less power from your engine. Consequently, a car that produces 100 horsepower at sea level may produce only 80 horsepower at 5,000 feet and a measly 60 at the top of Pikes Peak. If you allow for this loss of power—say when you pass another vehicle—you won't have too much trouble.

If you go up a mountain, it's a sure bet you will eventually come down, but it's not such a sure bet that you will do it safely. Coming down is most dangerous because the forces of gravity and inertia which helped control your car going up will be trying to make it go faster coming down.

Going downhill, it makes no difference whether you have standard or automatic transmission because the car will do nothing "automatically" except try to go faster. Common sense and speed-limit signs will give you a good idea of how fast "too fast" is, and the governing principle of downhill driving is one of controlling your speed rather than correcting it.

Before you start your descent is the time to shift into a lower gear. When in a lower range, engine compression will help slow your car. The lower the gear, the more braking action your engine will provide.

Your owner's manual will give you the maximum speeds at which you can shift an automatic into lower gears. If you find yourself over the recommended speed, simply brake down to it before shifting. It may be possible to make an entire descent without once touching the brakes.

But even with the car in a lower gear, what if you have to slow down more? This is the time to use your brakes. Try not to "ride" the brake for extended periods of time. Most brakes will "fade" or lose their stopping power after prolonged use.

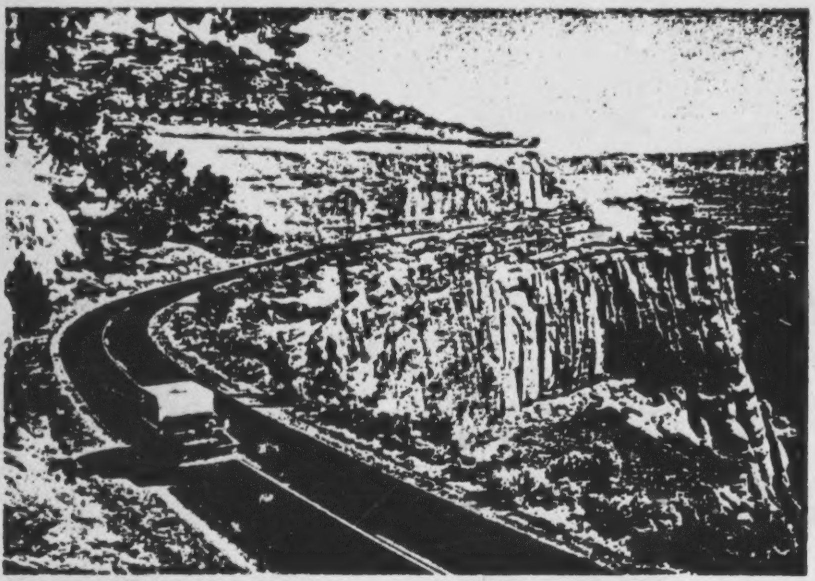
If you find yourself pushing the pedal closer and closer to the floor to slow the car, you can be fairly certain that your brakes are losing their stopping power. If necessary, pull off awhile and cool them.

Sometimes overcaution itself can be dangerous. As a captain in the Colorado State Patrol put it: "I have seen my share of mountain accidents, many of them caused by failure to observe a rule almost too elementary to mention—stay on your own side of the road."

Strangers to high country sometimes are so afraid of going off a cliff that they crowd the center line. Before they realize it, they have crossed into the opposing lane and are sideswiped or struck head-on by another vehicle.

Speed traps the unwary, downhill driver most easily when passing another car. Speed builds up alarmingly with an assist from gravity —and then comes the inevitable curve just ahead!

The vacation traveler can find charm in unfamiliar places, but he can also find trouble in the unfamiliar routes to get there. Alexander Pope said it neatly: "A little learning is a dang'rous thing." So learn more than a little about the tricks of driving in strange territory and have an "undang'rous" trip. ☐



Strangers to high country sometimes are so afraid of going off a cliff that they crowd the center line. Stay on your own side of the road!

CONCEPT III: THE VEHICLE - SPECIAL CHARACTERISTICS

There are many types of vehicles on the highway. Each type performs in its own way. Each speeds up, slows down, stops, changes direction, and holds to the road in its own way. To drive skillfully, you must know what your vehicle can and cannot do, and you must be aware of how other vehicles perform so you can react accurately to traffic situations. Four types of vehicles--motorcycles, trucks and buses, compact and sports cars, and bicycles--are discussed here.

Motorcycles are more unstable than four-wheeled vehicles: they are more likely to go out of control. Since they are smaller than most vehicles, it is difficult to see them and to judge their speeds. Always imagine a motorcycle to be traveling faster than it appears to be. Motorcycles can change directions more sharply than most vehicles. They have shorter stopping distance than autos because they are lighter and because the driver's hands and feet directly control the vehicle. Motorcyclists have good forward vision, but don't expect them to see you if you're approaching from behind.

Trucks and buses require more space in which to turn or back. These long, heavy vehicles tend to slow going up a hill and pick up speed going downhill. They take more time to pass a vehicle going in the same direction. Watch if you're driving a motorcycle, bike, or small car and a truck passes: the wind in its wake can push you around. Be extra careful when scanning--trucks and buses often block a driver's vision.

Compacts and sports cars have different capabilities from regular sedans. They can turn more abruptly and design features such as small rear windows and fastbacks create larger blindspots for their drivers. They can be buffeted from side to side by strong winds. It is harder for other drivers to see a small car in their blindspots and in dips in the road. Judging the speed of a small car is difficult because of the size. Since small cars may have two-cylinder engines (like a Saab) or high performance engines (like a Porsche or Lotus), it is hard to predict how fast they can speed up.

Bicycles are constant challenges to other drivers. They are unstable and extremely hard to spot in traffic, and can turn quickly. Falls and wobbles are frequent causes of accidents. Most bicyclists are children who lack experience and judgment in traffic situations, who cannot be counted on to obey rules, and who often act on impulses. Some instant danger signals are:

- --children on bicycles too large or too small for them,
- --two children on one bike,
- --a child on a bike carrying a package in hand,
- --two or more bicyclists (especially at intersections) because more are likely to be nearby.

Many bicyclists seem to ignore the law. Remember: auto drivers must pay bicyclists the same respect that they pay other drivers, and both auto and bike drivers are required to operate under the same Rules of the Road.

CONCEPT III: THE VEHICLE - SPECIAL CHARACTERISTICS (cont)

Objectives	Activities
Students will know the special characteristics of the four different types of vehicles.	1. Discuss the students' experiences as passengers and as bicyclists relating to the various types of vehicles. Ask: How do the four types of vehicles vary when making a turn? changing lanes? going up hills? down hills? Why is distance and speed judgment more difficult with motorcycles? small cars? Have the students make charts or posters comparing different types of vehicles. 2. In cooperation with the local driver education department, conduct an experiment comparing stopping distances of a bicycle, motorcycle, compact, sedan, and a school bus.

CONCEPT IV: THE PEOPLE - THREE TYPES OF PEDESTRIANS

People are critical factors in HTS. Each driver and pedestrian brings his or her unique abilities and emotional makeup into the system. Driving is a social activity: you have to learn to get along with every individual you meet on the road.

Pedestrians have the widest range of characteristics of all people on the road. One-fifth of traffic fatalities are pedestrians. Pedestrian accidents are more likely to cause death or serious injury than any other type of accident.

As a driver, you will need to know the characteristics of the three types of pedestrians most likely to be hit by a car. When driving, be on the lookout for these three types:

1. Children. They lack judgmental and physical abilities necessary to take care of themselves in traffic. They cannot judge accurately how fast a car is moving or how far away it is. They act impulsively: a child may dart into the road for no apparent reason. Children cannot change directions quickly. Small children may not see clearly, or they may not know the colors needed to cross using a traffic light until 6 or 7 years of age. Very young children do not recognize dangers accurately; a sharp piece of glass may be judged more dangerous than a speeding car.
2. The elderly. They often move more slowly than young or middle-aged adults. Even if they do not need a cane, they are not able to walk or to change directions in a hurry. Sight and hearing may be poor. Older citizens tend to ignore traffic signals. Even if they are in good physical condition, many have never driven and do not understand what a driver must cope with.
3. "Distracted" pedestrians. These may be intoxicated, or physically or emotionally disturbed. A large proportion of adult pedestrians killed is intoxicated. Others may be under the influences of other prescribed or unprescribed drugs. Strong emotions can cause a pedestrian to ignore traffic. Distracted pedestrians do not accurately judge traffic situations or move quickly.

Remember: The law requires that a driver sound the horn, slow down, and exercise "due caution" for a pedestrian who is obviously distracted or does not appear to notice the vehicle.

CONCEPT IV: THE PEOPLE - THREE TYPES OF PEDESTRIANS (cont)

Objectives	Activities
1. Students will know the characteristics of the three types of pedestrians most often killed or injured.	1. Discuss the characteristics of the young, the elderly, and the distracted pedestrian. Ask: If you were driving, what would you expect if you were to see a child at the side of the road? an elderly person? an adult who staggers? What would you do? How are all three groups similar? different? Ask if the students have encountered similar situations when driving their bicycles. 2. If students have worked with children in a traffic safety program, review their experiences with them. If not, arrange for the class to "adopt" a kindergarten or first grade and teach them some traffic safety rules. 3. Have the students survey elderly people in their community. How many drive? How do they get around? How do they feel about traffic signals and laws?
2. Students will understand their responsibility as drivers (auto or bike) to all pedestrians.	4. You Be the Judge. On page 379 is a synopsis of a real court case in North Carolina. Read and discuss it or have the students dramatize it.

YOU BE THE JUDGE

(mock trial)

This story represents a simplified version of an actual court case. Present them to the class or have the class act out the court scenes. (Note: A diagram of the situation is a must.) Encourage the students to say how the accident might have been avoided and who was at fault. Discussion questions should include: Who was legally responsible (liable) for this accident? What factors led to the accident (actions or road conditions)? At what point was the accident unavoidable? How could it have been avoided? Who had the last chance to avoid the accident? The court's decision is on the back of the master. (The names have been changed in the story.)

Before you read the story, go over this point of law. Drivers of vehicles (including bicycles) and pedestrians must take care of themselves in traffic. They must obey the law, keep a sharp lookout, and avoid an accident if they see "a last clear chance" to do so. If the injured party was not doing all these things, he helped cause the accident; since both parties were to blame, the defendent cannot be judged solely to blame. This is true even if the defendant violated the law.

It also might be wise to discuss the differences between civil and criminal courts. Many of these cases are tried in civil court where one individual sues another, usually to gain money for damages. Manslaughter, a criminal charge, is tried in criminal court where the State prosecutes an individual. (Perry Mason is always in a criminal court.) The rules which govern the court procedures are basically the same.

COURTROOM DRAMA

If students want to take the case and turn it into a courtroom drama, here is the cast of characters and the general trial procedure. This procedure is greatly simplified; feel free to adapt it to your own needs.

Cast of Characters

Judge
Bailiff - swears in witnesses

Court recorder (optional) - takes down everything said in court; if no one knows shorthand, a tape recorder can be used.
Plaintiff (and representative if plaintiff is a minor)
Plaintiff's attorney
Defendant
Defendant's attorney
Various witnesses
Jurors - need 12

COURTROOM PROCEDURE

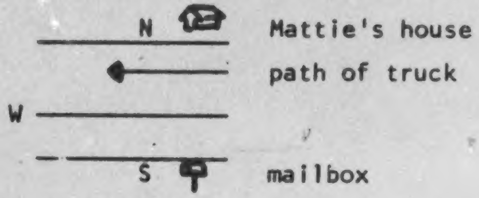
1. Judge calls court to order.
2. Jurors are chosen.
3. Plaintiff's attorney outlines accident and explains case from the plaintiff's viewpoint.
4. Defendant's attorney outlines case from defendant's viewpoint.
5. Plaintiff's witnesses are called and cross-examined.
6. After the plaintiff's case has been presented, the plaintiff or defendant's attorney may "move for a directed verdict"--meaning that the case is so clear cut that no more evidence is needed to vindicate or clear the client.
7. If the judge refuses, the defendant calls the witnesses and presents the defense.
8. After the defense is presented, the defendant moves for a "non suit"--meaning the plaintiff clearly has no case and the case should be dismissed. If the judge refuses, continue with 9-13.
9. The plaintiff's attorney makes a closing statement to the jury.
10. The defendant's attorney makes a closing statement.
11. The judge instructs the jury on the laws in the case.
12. The jury returns a verdict on the facts of the case.
13. The judge passes sentence.

If you are a social studies teacher or if the social studies teacher would like to cooperate in this activity, perhaps you would like to invite a real lawyer to come in and explain the court procedure in detail. A practicing lawyer could be a great help to the students in setting up a truly lifelike courtroom.

THE JUDGE AND JURY'S VERDICT

James Caulfield, administrator of the Estate of Mattie Simmons
Caulfield vs. Harry Seeker
Civil action to recover damages for wrongful death

The Accident. Mattie Caulfield lived on the north side of a two-lane rural road. One November morning she left her home to go to her mailbox on the south side of the road. Harry Seeker was hauling furniture in a truck that morning. He was following his brother-in-law in another truck, heading west on the highway at about 80 kilometers per hour (45 or 50 mph). The road was straight and the weather clear. The first truck passed Mattie Caulfield, who was opening her mailbox. When Harry Seeker saw Ms. Caulfield, he was 3-5 meters (12-15 feet) away and she had her back turned, apparently oblivious to the traffic. Suddenly she turned and quickly started across the road. Harry Seeker swerved to the left to avoid her, but the right side rearview mirror struck her head and her body was struck by the rear part of the truck cab. She was thrown 30 meters (90 feet) down the road and killed instantly.



The Defendant's Testimony. Harry Seeker testified that the road was straight in each direction so that Mattie Caulfield could have seen him for a considerable distance. She had her back turned and her nose buried in her mail. He did not sound his horn or slow down. He said he was too close to the other truck to see her until he was within a few meters of her. Then she turned suddenly and started back across the highway in a fast walk.

You judge: Did Harry Seeker exercise due care? Did Mattie Caulfield contribute to her own death?

THE VERDICT

The case was decided in favor of the plaintiff. While it was the duty of the pedestrian to look before crossing a road, the deceased's failure to do so was not found by the jury to be the cause of the accident according to the law. Here, the defendant was operating a heavily loaded truck at 72-80 kilometers per hour (45-50 mph) and following another vehicle too closely. The road was straight and he should have seen her, or saw her, before the first truck passed her. She had her back to him and was apparently unaware of his approach. Yet he did not sound his horn or slow down.

As the judge said in a similar case, "A motorist operates his vehicle on public highways where others are apt to be. His rights are relative. Should he lapse into a state of carelessness or forgetfulness his machine may leave death and destruction in its wake. Therefore, the law imposes upon him certain positive duties and exacts of him constant care and attention."

CONCEPT V: WHAT MAKES THE SYSTEM GO - HTS MANAGEMENT

For the HTS to be safe and efficient, there must be good roads and services. Federal, State and local agencies work with citizens to provide good roads and services. Highways are built and maintained by user taxes. Most of the State's money comes from gasoline taxes. Other money comes from vehicle registration fees, driver's license fees, and investments. The Federal government "matches" State money for many building projects and program improvements.

The HTS management has 10 components:

1. The motor vehicle registration system to provide:
   a. rapid identification of motor vehicles for enforcement, administration, and research,
   b. procedures to insure that motor vehicles operating on the highways are in good mechanical condition,
   c. income from registration fees.
2. Police traffic supervision for safe, efficient traffic movement by:
   a. directing and controlling traffic,
   b. enforcing legislation designed to produce safe pedestrian and vehicle conduct,
   c. investigating and attending accidents.
3. Traffic courts to determine guilt or innocence, impose penalties, and enforce the laws for protecting the public from unsafe actions.
4. Traffic, highway, and vehicle engineers to create traffic control systems and design safe and efficient highways and vehicles. Traffic engineers decide where and what kind of traffic controls to install; they plan the easiest, most efficient systems to move traffic. Highway design engineers create such life-saving concepts as expressways, break-away signs, and guardrails. Vehicle engineers design cars to travel faster, use less gas, and protect the occupants; safety belts and collapsible steering wheels are among their safety accomplishments.
5. Driver's and traffic safety education to teach HTS members responsible traffic behavior and to train new drivers in the skills and knowledge they need.
6. Emergency medical services to provide swift medical care to the injured in traffic accidents;
7. Driver licensing to help limit the driving privilege to those who are physically and mentally capable.

CONCEPT V: WHAT MAKES THE SYSTEM GO - HTS MANAGEMENT (cont)

8. Legislation to outline standards for drivers and pedestrians.
9. Traffic record system to provide information for research, law enforcement, courts, and traffic engineering for identifying and solving traffic safety problems;
10. Citizen's support groups that cooperate with public officials to provide support and direction to traffic safety programs.

CONCEPT V: WHAT MAKES THE SYSTEM GO - HTS MANAGEMENT (cont)

Objectives	Activities
Students will describe the function of each component of the HTS.	1. Discuss the material with the students. "Ask: If you think an intersection is dangerous and should have a traffic signal, who would you contact? How would you find out if it is really dangerous or if you just think it is? Who would decide why it is dangerous and what to do?" 2. Representatives of HTS management components can be found in your community. Ask each student to interview one and report to the class. Ask a gas station owner about vehicle inspection and a local traffic engineer (or public works director) about his job. Interview the chief of police, a traffic judge, an ambulance driver, AAA representative, driver education teacher, a license examiner. Write to your State congressman about his views on traffic laws or traffic services (construction, EMS, safety education).

DRIVING SKILLS

TEACHER INFORMATION - IPDE UNIT

The IPDE system for identifying, predicting, deciding, and executing is a teaching technique designed to aid beginning drivers in learning to react to traffic situations. The goal of system is to help the driver avoid obstacles in the path of travel. Collisions with obstacles--that is, accidents--can happen because of driver failure to identify a potential danger or to notice, evaluate accurately, and predict its effect on the vehicle. Even if it is identified and its effect predicted, an accident may happen if the driver decides to react inappropriately. Even an appropriate decision does not insure safety; the maneuver must be executed correctly to avoid an accident. The IPDE approach allows a student to "divide and conquer" each step in the driving task.

The purpose of this predriver education is to increase students awareness of the driving tasks and to give predriving practice in identifying and predicting traffic outcomes. Much of the material covered is background information that the young driver needs to be able to apply the IPDE system while driving.

As a teacher, you can help prepare the students to begin driving by

--encouraging them to think in terms of keeping their paths of travel clear of hazards,

--helping them get the feel of driving by pointing out mental exercises they can practice as passengers or bicyclists,

--furnishing them background information that will aid the driving task when it begins.

UNIT OUTLINE

Concepts	Goals
I. Driving Skills - Introduction to Identifying-Predicting-Deciding-Executing	Students will understand the purpose of studying IPDE and the dependent relationship of each link in the IPDE system.
II. Identifying	Students will define "identifying," as it relates to IPDE. Students will practice proper scanning techniques as passengers.
III. Predicting	Students will define "predicting," as it relates to IPDE. Students will understand the difficulties in predicting.
IV. What Clues Help You Predict	Students will apply their background knowledge in practicing predictions of traffic outcomes.
V. Making Decisions	Students will identify the key role of speed in decisionmaking.
VI. Deciding at Intersections	Students will recognize dangers at intersections.
VII. Right-of-Way Laws	Students will describe right-of-way laws of North
VIII. Following Distances	Students will understand the importance of proper following distances.
IX. Execution	Students will develop positive attitudes toward safe driving habits.

CONCEPT I: DRIVING SKILLS - INTRODUCTION TO IPDE

If handling a car was the only skill needed to drive, with enough bananas you could teach a monkey to drive. But driving takes brains as well as brawn. You can start to develop your driving technique even before you take the driver's seat.

An important part of driving is the ability to "read" and react to traffic. Let's break down the steps you must take to do this. Think of the path of your vehicle as a carpet rolling out in front of you. First you must identify important elements or hazards in that path. Then you must predict how these elements will affect your path of travel. You must decide what to do and then execute that decision.

You've been doing all this since you started to walk. When you were a child crossing the street, you would see a car. (Identifying) You'd say to yourself, "That car's really moving--it might hit me." (Predicting) Then you'd say, "I'd better get out of the way!" (Deciding) and jump to the curb. (Execution) That's a simple explanation. Driving is such a complex process you need a lot of information to react. Each part of the Identifying-Predicting-Deciding-Executing (from now on, it's IPDE) chain is linked to the other. It's impossible to leave out any link. But if one link is performed inaccurately, an accident can result.

CONCEPT I: INTRODUCTION TO IPDE (cont)

Objectives	Activities
Students will be able to define in their own words the IPDE process.	1. Discuss how students react to situations--either in traffic on bikes or on foot, or in other activities. Encourage them to discuss these reactions into IPDE terms. For example, if you are walking alone down the street and see a $5 bill on the side of the road (I); you say to yourself, "If I don't pick it up, someone else will" (P); you decide (D) to pick it up; and you do so (E). How long does this take? Encourage students to develop their own examples. Ask: "Why do you think we are going to study each step of the IPDE sequence in predriver education?"

CONCEPT II: IDENTIFYING

Let's take a look at what you will need to know about identifying hazards as a driver.

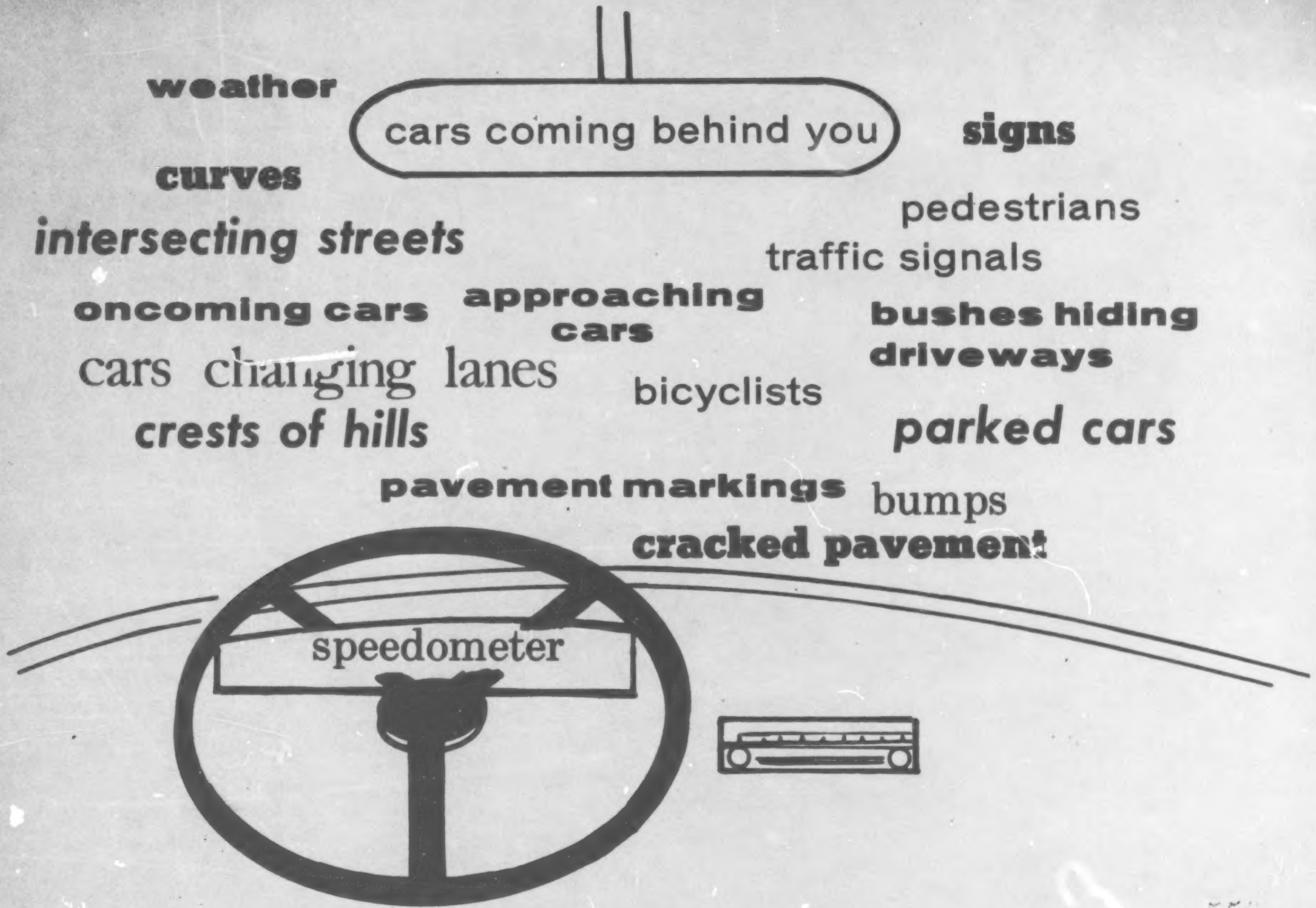
A driver must look for a host of important clues, such as:

1. Changes in the road. Look for curves, soft shoulders, broken pavement, slick spots.
2. Shrubbery or structures that block the view. Will a car whiz past the bush on the corner? Will a pedestrian pop out from behind the sign?
3. Other vehicles and pedestrians. Is the car going to change lanes? Will the child stay on the corner or cross the street?
4. Traffic signs, signals, and markings. Which lane do I use to turn? Will I have to stop at that corner?
5. Weather and environmental conditions. How will the rain on the road affect my turn? At what speed should I be traveling at night?

To identify these clues, you must get your eyes in training. The most important spot to watch is the center of your path of travel. But other areas are critical as well--the sides of the road, and behind you. Develop a scanning technique which uses quick looks to the back, to center, to the left, to center, to the right, to center. Concentrate on the critical happenings you identify, but be aware of what is happening all around your car. Don't forget your own vehicle; check the speedometer occasionally.

Objectives	Activities
1. Students will be able to define "identifying" as it relates to IPDE.	1. Ask: "Is identifying a physical or mental process?" (Both. You see and you evaluate what you see.) Relate "identifying" to their experiences as pedestrians and bicyclists. Ask what factors can hinder identifying hazards? (Inattention, fatigue, alcohol, not knowing what to look for, emotions, mood.)
2. Students will practice using the proper scanning technique to identify hazards.	2. Use master for reproduction #9 (p. 393), as a transparency to illustrate where and how to look. Trace your eye movements as you scan the screen. How would a driver's eye's move? (Drivers must look for traffic dissecting or affecting their paths of travel from straight ahead and the sides and from behind. 3. Have students practice scanning while they are passengers in a car or while watching a film: a. Identify clues to a sector of the traffic environment while riding as a passenger. (Clues relating to traffic lights changing, intersections, pedestrians and bicyclists, cars using or not using directional turn

Objectives	Activities
	signals. What clues to potential hazards or actions can the student find? b. Jot down a running commentary of the traffic environment while riding in the front passenger seat. (e.g., car approaching on left, traffic signal changing, pedestrian on right corner, car ahead making right turn) 4. Read and discuss the article, "Do The Eyes Have It?," p. 394. Have the students test their vision. Use "Test Your Eye-Q", p. 396, reproduced from Family Safety, vol. 32, no. 4, winter 1973-74. Discuss how depth perception and peripheral vision affect abilities to identify hazards.



weather

cars coming behind you

signs

curves

pedestrians

intersecting streets

traffic signals

oncoming cars

approaching cars

bushes hiding driveways

cars changing lanes

bicyclists

crests of hills

parked cars

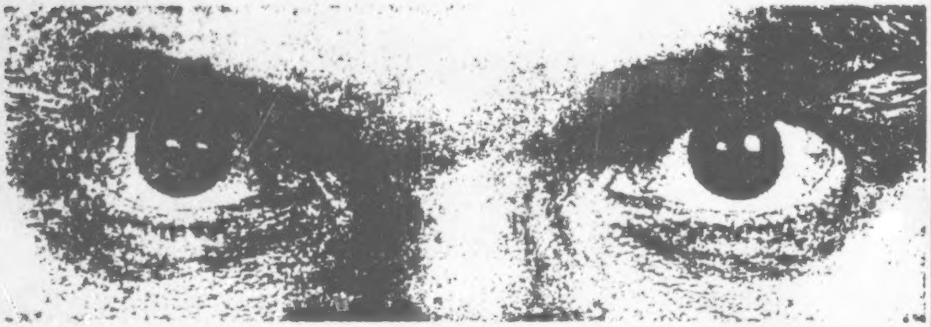
pavement markings

bumps

cracked pavement

speedometer

393



DO THE EYES HAVE IT?

MARINE fighter pilot Joe Foss was our first ace in World War II. Operating out of Guadalcanal against overwhelming odds, he nevertheless survived numerous dogfights with Japanese Zeros and won the Congressional Medal of Honor.

A war correspondent asked Foss for the secret of his success. The cigar-chewing flyer explained that he made a habit of scanning the sky, so that he was never surprised by an enemy plane.

"It doesn't cost anything to look," Foss said.

That was in 19 . In 1972—without being shot at, without running out of gas over the Pacific, without even leaving the ground—56,600 Americans were killed in automobile accidents.

According to safety experts, those traffic casualties provide a corollary to that statement by Joe Foss: It costs a great deal *not* to look.

Horse-and-buggy eyes

Do we look—really look—when we drive? Apparently not well enough. Today, all authorities agree that vision is the most important factor in safe driving. Yet today, too many of us are driving high-horsepower cars with what amounts to horse-and-buggy eyes. Even if our vision and our visibility are perfect, too many of us just don't know *how* to see.

The deaf know how. Because deaf drivers know—and their safety record proves—there's more to driving than meets the ear.

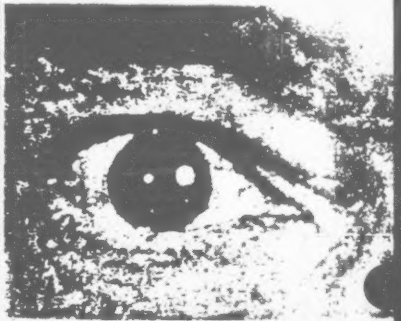
Judge Sherman Finesilver of the Denver Municipal Court, who directed the first National Symposium on Deaf Drivers in Colorado several years ago, reports that the deaf had 54 per cent fewer moving violations than motorists who could hear.

Officer John O'Connell of the Chicago Police Department graduated hundreds of drivers from a course he initiated for the deaf and mute. His opinion: "Driving is 100 per cent sight."

O'Connell feels that audible cues are useless in traffic. "Sirens sound like nothing to those outside a fire engine or police car," he says, "although they certainly sound loud enough to those inside—who then depend on being heard.

"What adds to the danger is that motorists depend on hearing warnings that *cannot* be heard."

O'Connell cited several cases in which two fire engines with sirens screaming collided at an intersection. A similar case involved three police cars that approached each



Reprinted from Family Safety magazine, Winter 1973-74.

other from different directions—and crashed.

Your automobile may not feature a siren as an option, but with windows closed, air conditioner or radio on, plus wind, tires and other exterior sound effects, chances are you're not much better off than a deaf person.

Regardless of the prevailing noise level, O'Connell urges you to drive as if you *were* deaf. Drive with your eyes alone, expect no audible warnings and take nothing for granted.

No surprises for expert

Additional advice comes from safety consultant Harold Smith, who for years has specialized in the problems of vision and driving.

According to him, the inferior driver lives in a world of surprises. He is surprised because he doesn't know where the next signal is or what color it is. He sees no lane changes, turn indicators, kids, dogs, bicycles or cars pulling out from the curb.

The superior driver is seldom surprised for, like Joe Foss, he surrounds himself with a cushion of space-visibility. To create that cushion, Smith and other authorities offer these tips:

Raise your sights while driving. "You don't look at your toes when you walk," Smith says. "You usually look 25 feet ahead. When you're driving at 25 to 30 mph, you should have your path picked out several hundred feet ahead."

That will enable you to "get the big picture." At city speeds, the big picture is a block long. Translated into time at 30 mph, it amounts to 12 seconds. And that's the distance and time a driver's eyes should lead his car.

The width of the big picture is from sidewalk to sidewalk. If, for example, you see a man in the driver's seat of a parked car, it means his door may fly open or his car may veer out in front of you.

The eyes and the mind have to get ahead of the hands and the feet, and the only way to do that is to ease up on the gas. The poor driver hits the gas first, then looks, then hits the brakes. The expert drives with his eyes, looks first, then hits the gas.

Smith believes that the nighttime rule—never overdrive your headlights—adapts itself to daytime: "Never overdrive your eyesight."

Keep your eyes moving. We only have a three-degree cone of vision in which objects appear in clear detail. Around that central vision is 90 degrees of peripheral vision. Although the latter isn't sharp, it is highly sensitive to motion, light and darkness, and varying shapes and sizes.

When your eyes and mind both beam in on a single object, you can block out your peripheral vision. In other words, you see the tree but not the forest.

Keep your eyes moving to avoid fixing on only one point in the traffic stream. Use your small cone of sharp central vision like a flashlight —constantly scanning your driving environment, including those rearview mirrors.

The best visual habits in the world won't help you, however, if you're surrounded by visual obsta-

cles, says Dr. Merrill J. Allen, professor of optometry at Indiana University. His recent book, *Vision and Highway Safety*, mentions some of those blind spots and tells you how to avoid them.

Keep all glass clean: windshield, windows, mirrors, headlights, taillights and turn indicators.

Replace old wipers that streak.

Never block your vision with baby shoes or other objects hung from the inside rearview mirror. As for objects in front of the rear window, they not only block vision but become flying missiles in a panic stop. Window stickers should be kept out of the driver's lines of sight.

If the top of your dashboard casts its reflection on the inside of your windshield, cover the reflecting surface with a dark cloth or towel, to eliminate what Dr. Allen aptly calls the "one-way mirror" effect. (Older readers may remember it as "Speakeasy Glass.")

Dr. Allen points out that even 1974 model cars have built-in visual obstacles such as windshield corner posts, quarter panels and rearview mirrors that are too large and mounted too low. His advice: "Learn how to move your head like a chicken, to see around those blind spots."

One of the greatest visual obstacles is darkness, and all safety authorities stress these rules for night driving:

Reduce your speed by at least 10 mph. Know your stopping distance and never overdrive your headlights. Dim your lights when meeting and following. Keep your instrument panel lights dim and your dome light off.

Before passing at night, beware of what appears to be a car approaching in the distance. Those small, close-set headlights might belong to a not-so-distant compact car.

If you're exposed to a lot of bright sunlight, wear a pair of quality sunglasses during the day, especially when sunlight is reflected off snow or sand. It will help preserve your night vision.

No discussion of visual driving would be complete without mentioning eye examinations. Are the eye tests given by licensing authorities adequate?

Don't go by those tests alone. They screen out only [illegible] defects. Drivers—and everyone else—should be examined by an eye doctor at least once every two years to assure good vision.

A visual acuity score of 20/20 doesn't mean your vision is perfect. Other factors such as how well your eyes work together and how well you judge depth and distance are vital, yet are widely ignored in license examinations.

Practice creative driving

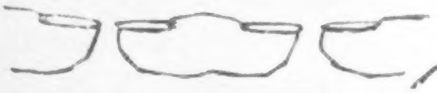
To check those other factors, try the rudimentary tests on these pages. They're no substitute for a doctor's examination, but you may discover something about your most important safety device—your eyes.

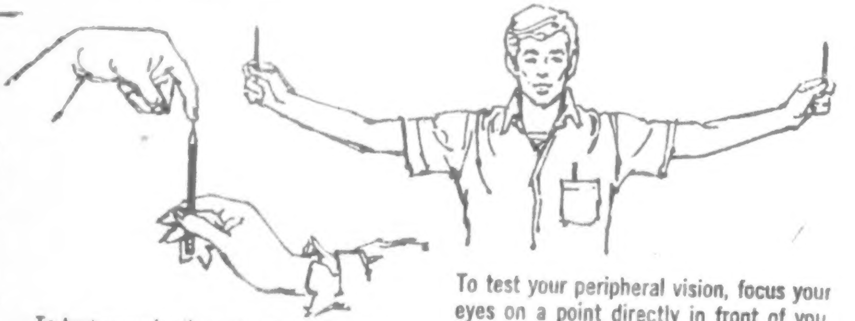
Visual driving is really *creative* driving. By applying what you've just learned in this article, you can avoid becoming a passive victim in dangerous situations.

Instead, you can now eliminate the situations themselves by actively creating your own safe driving environment—a cushion of visual space-time that will protect you and your family.

TEST YOUR EYE-Q

Can you see well enough to drive safely? A visual acuity score of 20/20 doesn't mean your vision is perfect. How good is your depth perception, peripheral vision? Try these simple do-it-yourself tests. But remember—they're no substitute for a doctor's examination!





To test how well your eyes work together, face a bright wall and hold the tips of your index fingers one-half inch apart and 10 inches in front of your eyes. Look beyond your fingers, actually focusing on the wall behind. If your eyes coordinate well, a sausage-shaped object should appear between your fingertips, with space at either end. If you have poor coordination, you won't see a sausage.

Defects in eye coordination should be corrected. Failure to see the sausage means your brain is tired of trying to fuse the two images and is automatically blocking one out. You therefore see with only one eye and lose some of your depth perception.

To test your depth perception, have someone hold a pencil upright in front of you at eye level. Don't move your head. Starting with your hands down at your sides and both eyes open, reach out and slowly bring an index finger down to touch the tip of the pencil. Repeat with the other hand. If you can't touch the pencil five out of five times, you have poor depth perception.

To test your peripheral vision, focus your eyes on a point directly in front of you. Then, holding a pencil in each hand, raise your arms behind you to shoulder height and bring them slowly forward, still looking ahead, until you can make out both pencils. For most people, the movement becomes perceptible at 90 degrees on each side. Less than 70 degrees is considered a driving hazard; it may also indicate a serious health problem, and you should consult an eye doctor immediately.

CONCEPT III: PREDICTING

What do you do with the things you've identified? You predict if those things are going to affect your path of travel. Drivers must put together everything they know about traffic laws and controls, how vehicles operate according to physical laws, the nature of the beast who drives the vehicles or walks, and where and why most accidents happen.

What makes predicting different? There are two things to remember. One is that one of the most difficult things for anyone to do is judge distance-time relationships. Try this: Mark off the distance you believe to be 60 centimeters (2 feet), and take a meterstick and measure that distance. Ask several friends to do the same without consulting each other. How accurate were you?

As that distance expands to 30 or 90 meters (100 to 300 feet), your estimates will become more inaccurate. Complicate that by making the distance change each second, quarter of a second, tenth of a second--as it does when you're in a moving car. Judging time and distance between your car and another moving vehicle-it is even harder. It takes a lot of practice to be able to judge all these factors on the road.

The second thing to remember is that you can't actually know what other people are going to do. Most people will act reasonably, but there are drivers and pedestrians on the road with severe mental or emotional problems or with their minds befuddled with alcohol. If you expect erratic behavior, you'll have the time and space to react.

CONCEPT III: PREDICTING (cont)

Objectives	Activities
1. Students will be able to define the process of predicting as it is related to IPDE.	1. Discuss predicting. Ask what a driver uses to predict traffic movements? Do they use traffic signals? What else? What must drivers do before they predict? (Identify factors that affect the path of travel.) How does your skill in predicting affect the elements you consider important to identify.)
2. Students will identify two factors which make predicting difficult.	2. Discuss predictability of people the students know. Do students know what the teacher in the next class will say when they walk in? Will assign for homework? Are younger brothers and sisters more or less predictable than adults? In football or basketball, how is predicting plays important to the game? What happens if you predict one play and the team executes another?
	3. One type of distance-judging activity is included in the narrative. Use the chart of stopping distances (p. 401) for another. Take students outdoors and have them first estimate, then measure, and finally compare stopping distances.

STOPPING DISTANCE CHART

METRIC

Speed (km/h)	Reaction Time Distance (m)	Braking Distance (m)	Stopping Distance (m)
105	21.9	75.3	97.3
90[1]	18.9	53.4	72.3
75	15.6	34.1	49.7
60[2]	12.5	22.0	34.2
45	9.5	12.5	22.0
30[3]	6.1	6.4	12.5
15	3.1	2.4	5.5

[1] Approximate highway speed

[2] Approximate Residential speed

[3] Approximate Downtown speed

ENGLISH

Speed (mph)	Reaction Time Distance (ft)	Braking Distance (ft)	Stopping Distance (ft)
70	77'	304'	381'
60	66'	206'	272'
50	55'	133'	188'
40	44'	81'	125'
30	33'	45'	78'
20	22'	23'	45'
10	11'	9'	20'

CONCEPT IV: WHAT CLUES HELP YOU PREDICT?

There are many clues you can identify to help you predict what another driver might do. Look for clues from the vehicle-directional signals, back-up or brake lights, wheel position or exhaust fumes. The position of the vehicle in the lane may also help. Most drivers move toward the side if they plan to turn. The type of vehicle can tell you a lot. So can the age of the driver and the number and age of the passengers. What do you know about types of vehicles and kinds of pedestrians which can help you make predictions?

Don't forget to predict how your own vehicle will be affected by the environment. Your car is affected by gravity when going up and down hills. What could you predict about the speed of your car when it passes over the crest of a hill? It will speed up, just as your bike does going downhill.

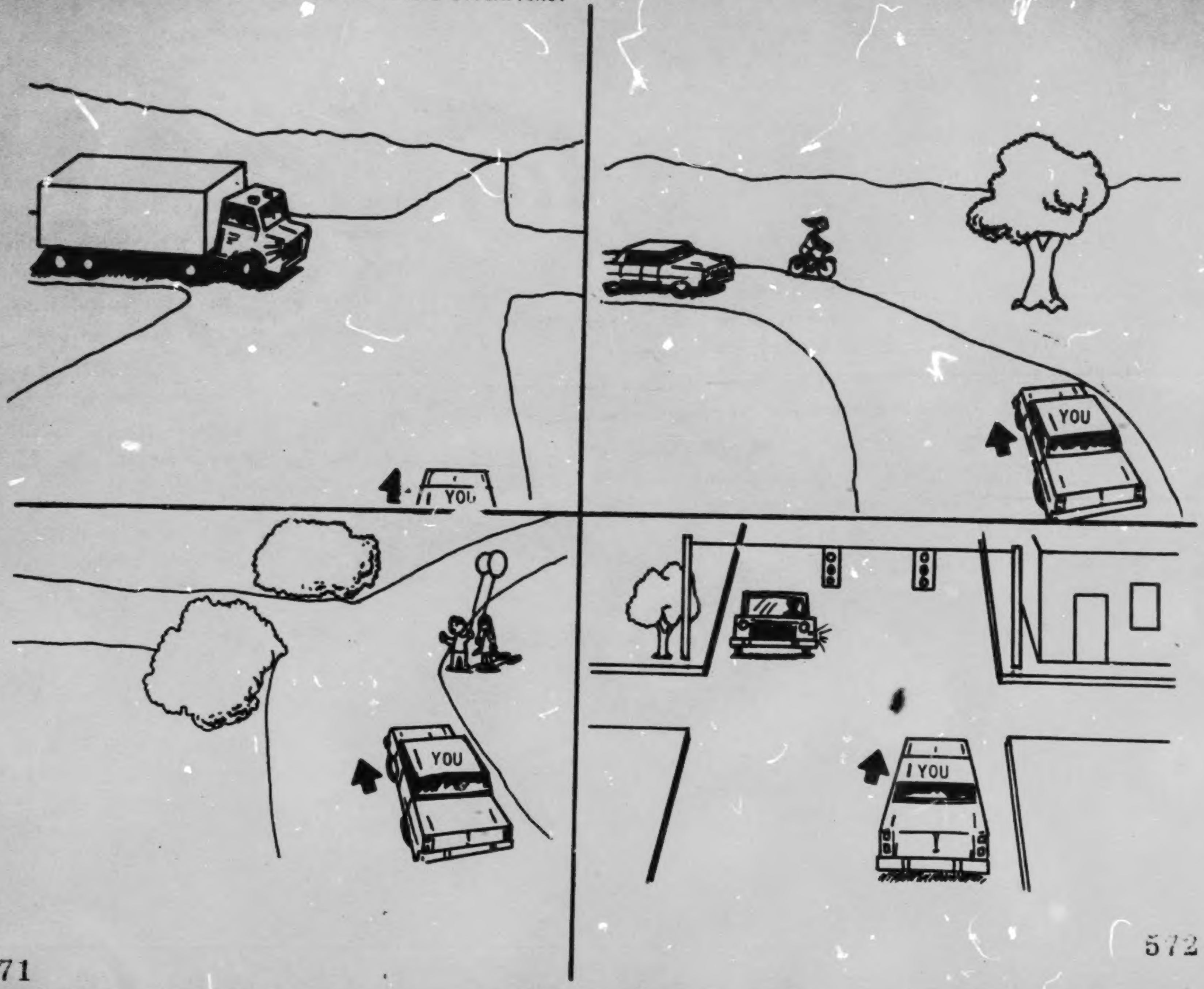
When you spot a curve ahead, predict the impact it will have on your vehicle. Check your speed; it must be appropriate before you enter the curve. Your vehicle's movement is affected by inertia--the resistance of a body to motion change. When a car enters a curve, you feel the effect of centrifugal force because the car (and your body) tends to resist change in direction; the car and your body tend to follow a straight path. That is why you lean to one side. To control this tendency, your speed is critical. If you are traveling too fast, inertia will send your car off the road. Most sharp turns are marked with the speed at which inertia can be easily overcome.

Other changes in the road are clues for prediction. Such clues might be rain, oilspots, bumps, ice patches, or other roadway conditions which will affect your vehicle's path of travel.

Objectives	Activities
Students will apply this background knowledge in practicing prediction of traffic outcomes.	1. Divide the class into small groups. Have a group develop situation cards or paragraphs depicting clues to potential outcomes. Quiz the other class members to see how quickly they can identify the clues and predict the outcomes. 2. Have students relate personal experiences as passengers predicting outcomes. Expand on identification exercises in previous concept. What traffic movement predictions did students make in each case? Do all drivers and pedestrians act rationally and communicate fully with other drivers? What clues do you pick up that might warn you of unsafe or conflicting actions in the vehicle path? What clues might you detect about a driver's use or misuse of alcohol? 3. Many accidents are caused by drivers who fail to anticipate hazards and suddenly find an accident inevitable. Draw and label diagrams or pictures (or tell a story) of a traffic situation. Show how the situation looked at some distance and how it could have developed into an accident if

Objectives	Activities
	the driver had not spotted it in time. 4. Distribute copies of master for reproduction #12, p.405. Have students identify and predict key elements: a. Truck turning right into path will take up more space than a car. b. Kid on a bike might do anything; your car will tend to head to the right and other car will tend to drift into your path. c. Kids might do anything; bushes might hide another kid or a vehicle. d. Light is yellow; car might turn (look at blinkers and wheels).

AT WOULD YOU PREDICT IN EACH OF THESE SITUATIONS?


YOU
YOU
YOU
YOU

CONCEPT V: MAKING DECISIONS

You're driving on a busy street. You identify a pedestrian stepping off the curb; you predict he will not stop for you. Within a split second you must decide what to do. Do you brake (what about the car behind you)? Do you swerve (what about the bicyclist approaching)? Do you sound your horn and go on [illegible] if that confuses the pedestrian and he runs into your car)?

Time is the key factor in decisionmaking. Time is space in the traffic environment. Consider this: if you are traveling at 30 kilometers per hour (20 mph), you will travel 8.5 meters; in 1 second at 45 kilometers (28 mph), you will travel 13 meters (43 ft.)--that's 4.5 meters (15 ft.) less in which to decide what to do. Speed is a key factor in driving well.

High speeds increase the severity of accidents, About one-third of North Carolina's fatal crashes involved a driver going too fast for the situation. When the legal speed limit was lowered to kilometers per hour (55 mph), traffic deaths dropped sharply.

How fast is too fast? Use posted speed limits as guides. Traffic engineers have calculated the fastest speed an average car can do and still make the curves and stops in an area. In most places, North Carolina laws on speed are backed up by natural laws of motion affecting your car.

As a rule, it is best to travel at the same speed the other cars are traveling; the odds are greater that you'll have an accident if you drive faster or slower. Driving slower means that traffic may back up behind you, and drivers may get impatient and pass when they shouldn't. Driving faster means you'll be the one taking unnecessary passing risks.

Other important factors are road surface. weather conditions, your physical condition, the car's condition, and concentrations of pedestrians, bikers, children, and other hazards. Sight distances are shorter and judgment skills are less effective; reduce your speed at night.

CONCEPT V: MAKING DECISIONS (cont)

Objectives	Activities
Students will be able to define deciding in relation to IPDE.	1. Discuss making decisions in traffic. Why is the speed of decision important? Is it better to be fast or accurate? How do identifying and predicting relate to good decisions? 2. Give the students opportunity to make split-second decisions related to values. Have students choose an alternative, defend it, clarify values, and evaluate their decisions. Use the Would you rather be . . . list on p. 409. 3. Discuss what decisions the driver made or should make in similar situations. Use experiences from the identification or prediction exercises.

WOULD YOU RATHER BE . . .

1. A saver or a spender
2. A VW or a Porsche
3. An actor or a scientist
4. A harp or a drum
5. A hammer or a nail
6. Champagne or Beer
7. A lightening bug or a butterfly
8. A rose or a daisy
9. A forward or a guard
10. Napoleon or Einstein
11. A pickup truck or a Cadillac
12. Spring or autumn
13. Yes or no
14. Like the city or the country
15. The President or a rock star
16. Rich or have a lot of friends
17. Like the ocean or the desert
18. A Redwood or a Dogwood
19. A firecracker or a birthday candle
20. A mountain or a prairie
21. Diet soda or a milkshake
22. Fried chicken or steak
23. Blind or deaf
24. A tomato or a peach
25. The sun or the moon

CONCEPT #1: DECIDING AT INTERSECTIONS

Intersections are being mentioned again because they deserve a second look--literally. Coming to a full stop at a STOP sign is important. It gives you a chance to get together your wits and look twice before you decide to go. Look carefully. If drivers merely turn their head, they often do not focus on the road If you don't take time to focus your eyes, you can look but not see a car approaching. Over half the accidents in North Carolina happen at an intersection. Many drivers say they looked but just didn't see the other vehicle.

Here's a riddle - why is a traffic light mean? Because that's where a street is cross. No! That doesn't sound right. Let's ask it again: What does a traffic light mean? (No points for red means "stop" and green means "go.") Answer: a traffic signal means there are enough cars and enough accidents at the intersection to make it worth the $20,000 to $50,000 to install a signal.

Take the hint. Obey those lights.

CONCEPT VI: DECIDING AT INTERSECTIONS (cont)

Objectives	Activities
Students will understand the hazards associated with intersections.	1. Have the students collect newspaper clippings of local traffic accidents. How many happen at intersections? Determine if there are particular intersections in your area which have more than their share of accidents. (ask your local police.) Have the students view the sites and identify why that intersection is particularly hazardous. 2. Use masters for reproduction 2-9, p. 64, from the Bicycle Safety Unit, Concept II, Subconcept B. Have the students identify the same steps as directed in that unit, but as if they were auto instead of bicycle drivers.

CONCEPT VII: RIGHT-OF-WAY LAWS

Right-of-way laws spell out which driver or highway user may go first when their paths meet. The laws usually state who must yield. A driver should never insist on the right-of-way if the other driver does not yield. If the other driver doesn't grant you the right-of-way, you do not have it--even if the law says you should have it.

When you have the right-of-way, you can still be held responsible for an accident if you have the "last clear chance" to avoid a collision and fail to do so.

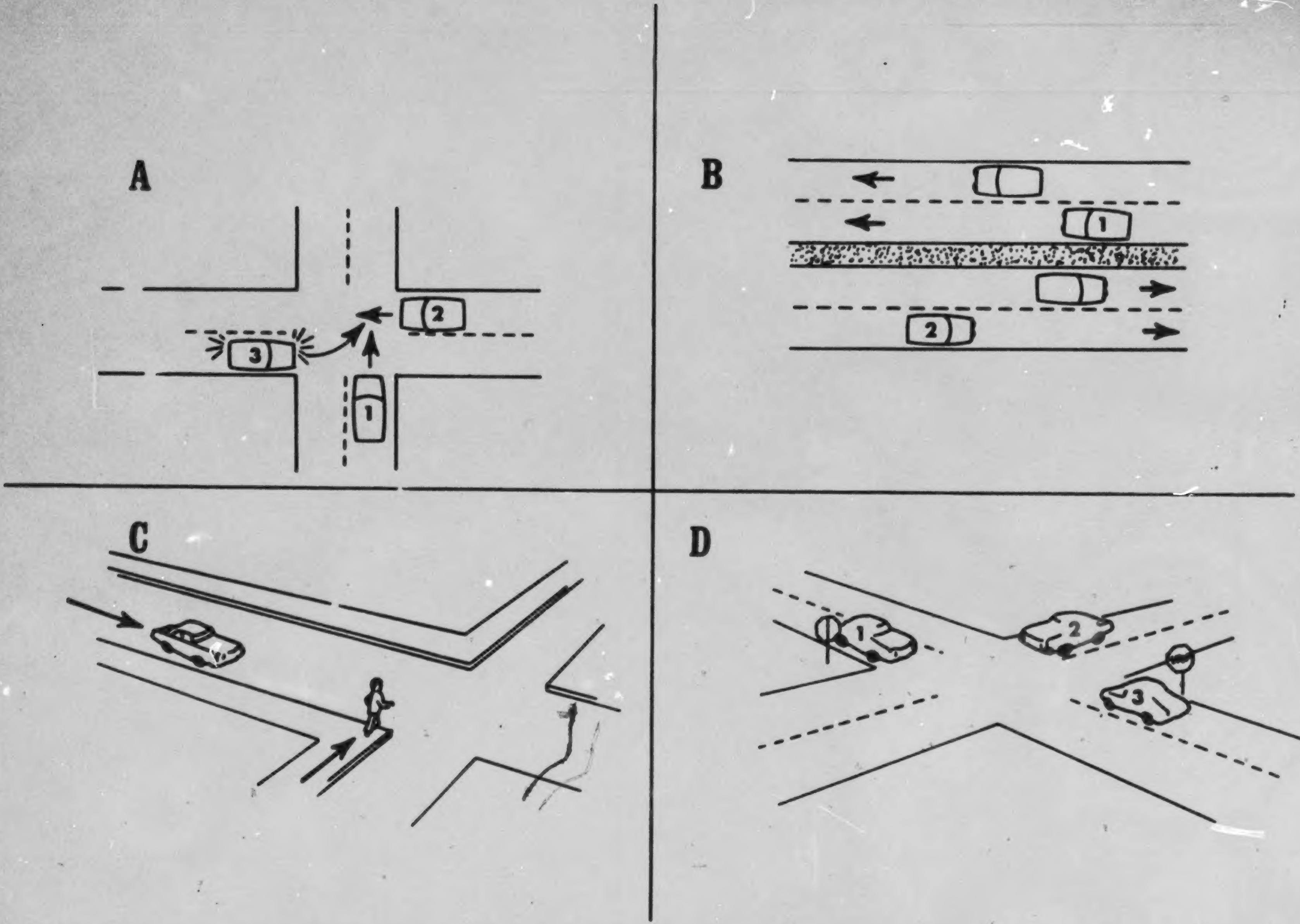
The basic right-of-way law requires that you slow down when approaching an intersection--whether or not you have the right-of-way.

1. The car that enters the intersection first has the right-of-way over the car that has not yet entered.
2. If neither car has entered the intersection and both will enter at approximately the same time, the car approaching from the right has the right-of-way.
3. A car making a left turn must yield the right-of-way to one going straight ahead.

4. Pedestrians have the right-of-way at all marked and unmarked crosswalks.

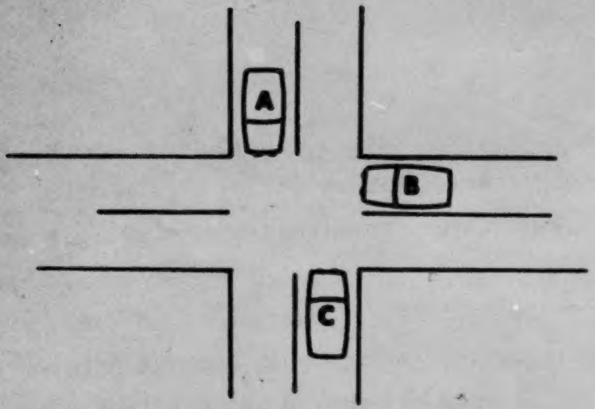
CONCEPT VII: RIGHT-OF-WAY LAWS

Objectives	Activities
Students will describe the laws of right-of-way in North Carolina.	1. Using masters for reproduction 15 and 16, p.414, discuss who has the right-of-way. Answers: Master 15 - Diagram A - car 2 Diagram B - both cars Diagram C - pedestrian Diagram D - car 2 Master 16 - Diagram A - A, B, C Diagram B - car 2 only Diagram C - car 1 and Diagram pedestrian Diagram D - B then C 2. Make an interchange or intersection with chalk on the floor. Have the students take the parts of the automobiles and actually travel the correct routes.

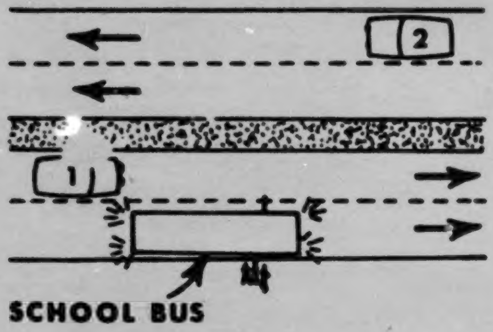

A
3
2
1
B
1
2
C
D
1
2
3

INSTRUCTIONS: IDENTIFY HIGHWAY USER WITH THE RIGHT-OF-WAY IN EACH DIAGRAM AND DISCUSS PERTINENT RIGHT-OF-WAY LAWS.

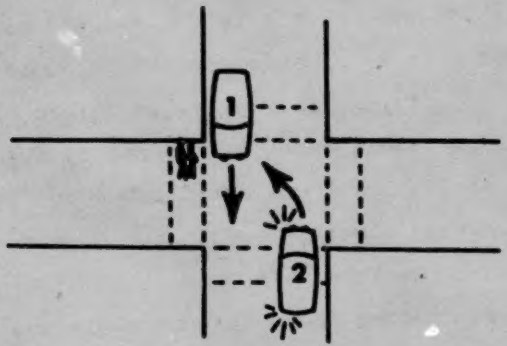
A



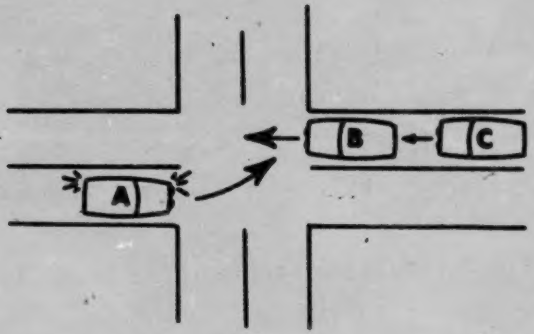
B


2
1
SCHOOL BUS

C



D



INSTRUCTIONS: IDENTIFY HIGHWAY USER WITH THE RIGHT-OF-WAY IN EACH DIAGRAM AND DISCUSS PERTINENT RIGHT-OF-WAY LAWS.

CONCEPT VIII: FOLLOWING DISTANCES

Following another vehicle too closely is the main cause of rear-end collisions. Rear-end collisions are the most common accidents in cities and on interstate highways. Many happen when a car suddenly stops to make a turn at an intersection. Keeping the proper distance between your car and the car ahead gives you more time to react without being forced to slam your brakes or swerve into a yard or the other lane of traffic.

A 2-second space between cars is safe under normal circumstances. That's about one car length per 15 kilometers per hour (10 mph). To check that distance, pick a reference point (a tree or post) well ahead of the vehicle you're following; when the vehicle passes the point, count "one thousand one, one thousand two;" if you have not reached the point, you can assume you have a safe following distance; if you have reached it, ease off the gas to gain space. This test works at any speed.

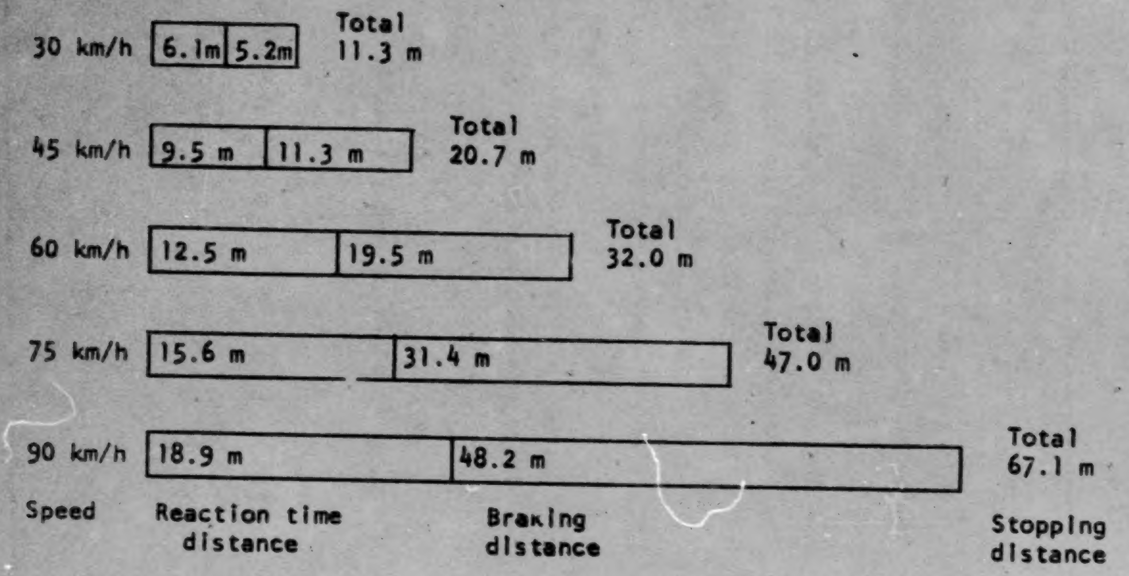
There are certain circumstances which make it necessary for you to maintain an even greater following distance--say 3 or 4 seconds.

1. As speed increases, so does stopping distance; maintain a longer headway between you and the car ahead.
2. Wet or icy roads require greater stopping distances.
3. When driving at night or in weather which limits visibility, a longer headway is needed.
4. When you are fatigued, your reaction time is decreased and you will need more time to respond to hazards.
5. Motorcycles have shorter stopping distances because of the lighter weight.
6. It is unlawful to follow within 120 meters (400 feet) of an emergency vehicle.

CONCEPT VIII: FOLLOWING DISTANCES (cont)

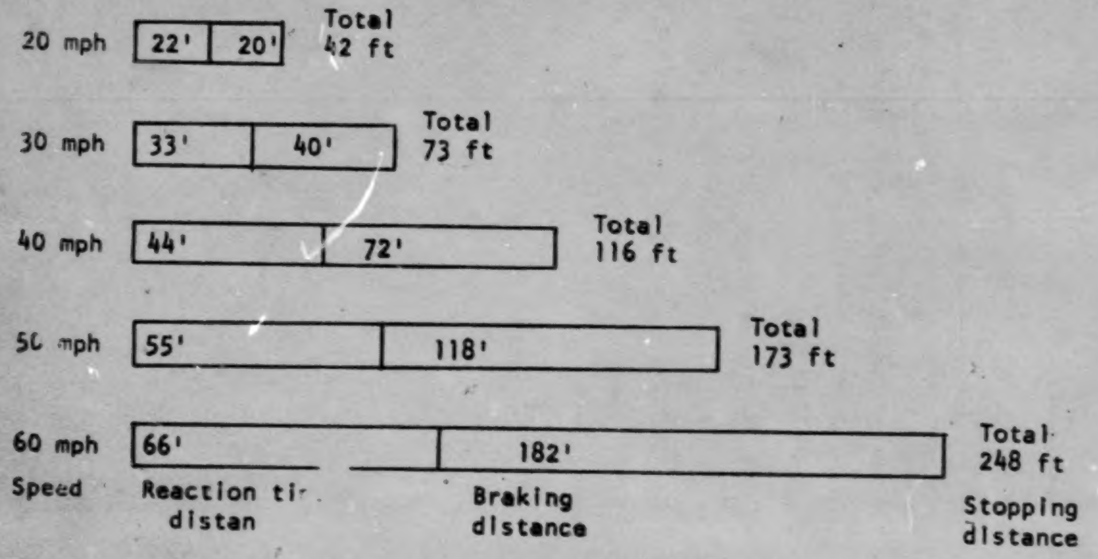
Objectives	Activities
1. Students will demonstrate understanding of the two-second rule for determining following distances. 2. Students will recognize the importance of maintaining constant attention to following distances. Also, students will analyze a traffic accident and be able to distinguish the point at which the accident became unavoidable.	1. Discuss the importance of maintaining a safe following distance. Ask why maintaining a safe following distance is important. How do you determine the distance? Use the stopping distance charts and the speed charts on pp. 418-419, to illustrate correlations between 2 seconds of travel and stopping distances for speeds. Relate student experiences as bikers and as auto passengers to reasons for maintaining longer following distances under special conditions. 2. Encourage the students to test the 2-second rule while auto passengers. 3. "Jury Duty", p. 422. The court case may be read aloud, discussed, or dramatized.

SPEED, REACTION TIME, AND STOPPING DISTANCE - METRIC



Note: 30 km/h is business district speed; 55 km/h is residential area speed; and 90 km/h is highway speed.

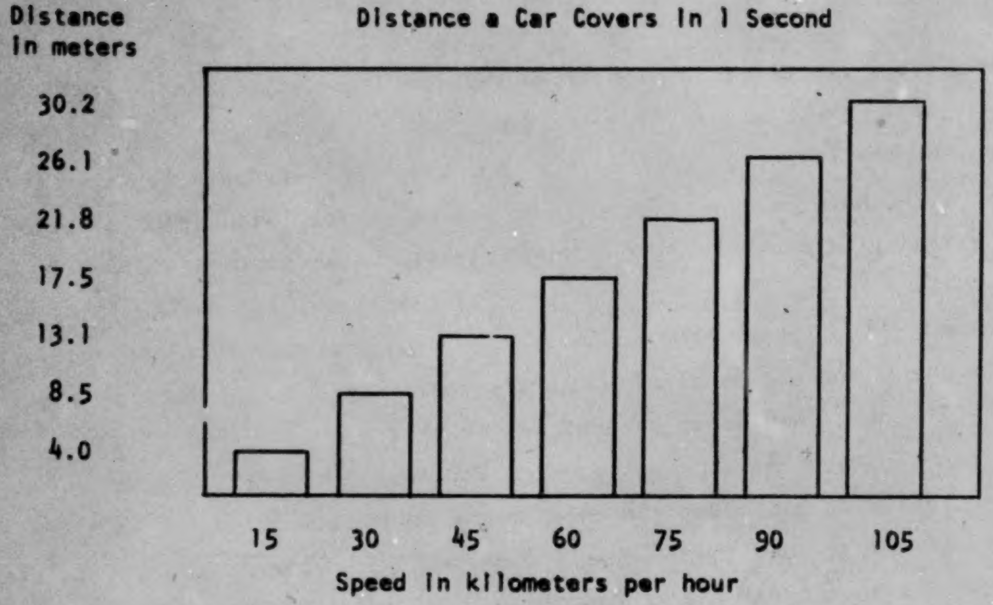
SPEED, REACTION TIME, AND STOPPING DISTANCE - ENGLISH



Note: 20 mph is business district speed; 35 mph is residential area speed; 55 mph is highway speed.

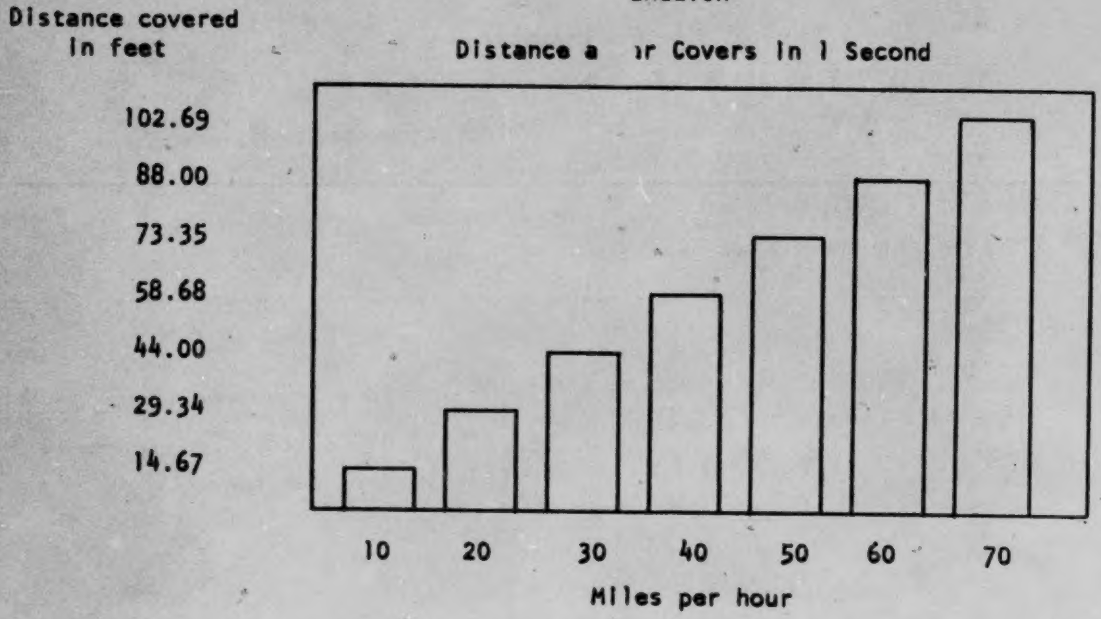
SPEED CHART

METRIC



Note: 30 km/h is business district speed; 55 km/h is residential area speed; 90 km/h is highway speed

ENGLISH



Note: 20 mph is business district speed; 35 mph is residential speed; 55 mph is highway speed.

JURY DUTY

(mock trial)

This story represents a simplified version of an actual court case. Present them to the class or have the class act out the court scenes. (Note: A diagram of the situation is a must.) Encourage the students to say how the accident might have been avoided and who was at fault. Discussion questions should include: Who was legally responsible (liable) for this accident? What factors led to the accident (actions or road conditions)? At what point was the accident unavoidable? How could it have been avoided? Who had the last chance to avoid the accident? The court's decision is on the back of the master. (The names have been changed in the story.)

Before you read the stories, go over this point of law. Drivers of vehicles (including bicycles) and pedestrians must take care of themselves in traffic. They must obey the law, keep a sharp lookout, and avoid an accident if they see "a last clear chance" to do so. If the injured party was not doing all these things, he helped cause the accident; since both parties were to blame, the defendent cannot be judged solely to blame. This is true even if the defendant violated the law.

It also might be wise to discuss the differences between civil and criminal courts. Many of these cases are tried in civil court where one individual sues another, usually to gain money for damages. Manslaughter, a criminal charge, is tried in criminal court where the State prosecutes an individual. (Perry Mason is always in a criminal court.) The rules which govern the court procedures are basically the same.

COURTROOM DRAMA

If students want to take the case and turn it into a courtroom drama, here is the cast of characters and the general trial procedure. This procedure is greatly simplified; feel free to adapt it to your own needs.

Court recorder (optional) - takes down everything said in court; if no one knows shorthand, a tape recorder can be used.
Plaintiff (and representative if plaintiff is a minor)
Plaintiff's attorney
Defendant
Defendant's attorney
Various witnesses
Jurors - need 12

COURTROOM PROCEDURE

1. Judge calls court to order.
2. Jurors are chosen.
3. Plaintiff's attorney outlines accident and explains case from the plaintiff's viewpoint.
4. Defendant's attorney outlines case from defendant's viewpoint.
5. Plaintiff's witnesses are called and cross-examined.
6. After plaintiff's case has been presented, the plaintiff or defendant may "move for a directed verdict"--meaning that the case is so clear cut that no more evidence is needed to vindicate or clear the client.
7. If the judge refuses, the defendant calls the witnesses and presents the defense.
8. After the defense is presented the defendant moves for a "non suit"--meaning the plaintiff clearly has no case and the case should be dismissed. If the judge refuses, continue with 9-13.
9. The plaintiff's attorney makes a closing statement to the jury.
10. The defendant's attorney makes a closing statement.
11. The judge instructs the jury on the laws in the case.
12. The jury returns a verdict on the facts of the case.
13. The judge passes sentence.

If you are a social studies teacher or if the social studies teacher would like to cooperate in this activity, perhaps you would like to invite a real lawyer to come in and explain the court procedure in detail. A practicing lawyer could be a great help to the students in setting up a truly lifelike courtroom.

JURY DUTY

Alice Samuel Hyatt v. Cooper D. Finch

(This is an actual court case, only the names have been changed)

The Accident. Alice Hyatt and her friend, Betty, were driving along Highway No. 8, a two-lane road between Saratown and Westfield. A summer storm had just broken and cleared the air. The clouds were being whisked away southward by the wind. The highway was still wet but the sun was shining through patches in the clouds. Alice was driving the last car in a string of five cars. She had followed Cooper Finch through the storm at about kmph (35 mph). Cooper Finch and his wife were chatting, refreshed by the coolness brought by the storm. Their son had finally fallen asleep stretched out on the back seat. Mr. Finch noticed that the first car in the line was slowing for a left turn. He braked carefully so that he wouldn't disturb his son, stopping about 3 meters behind the car ahead. His foot was still on the brake pedal when Alice Hyatt's slammed into the rear of his car. His car was knocked into the car ahead. Alice Hyatt and her passenger were seriously injured.

The Witness' Testimony. Alice Hyatt testified: "I had been following Cooper Finch's Chevy for about 20 minutes. I was following a procession of cars driving at about kmph (35 mph). The road was wet and slick. All of a sudden, Mr. Finch stopped his car. He never signaled or anything. I was about four car lengths from him and I couldn't stop my car in time.

Cooper Finch testified: "My wife and son and I were in the car. I was following the car ahead by about 25 or 30 meters. Traffic was pretty heavy and the road was wet. The first car in the line ahead was signalling a left turn and stopped for traffic in the oncoming lanes. The other cars slowed down--so did I. I stopped about 4 meters (12 ft) from the car ahead. I sat their just a second--and bam! Alice Hyatt ran right into the back of me." In answer to his attorney's question--'Well, my brake lights were working the day before--I don't see why they wouldn't have been working then!" To counsel for the plaintiff--"No, I didn't hand signal. It was raining--the windows were up!"

Mrs. Finch testified: "At the time of the accident, I was turned around to make sure Johnny, my son, wasn't going to fall off the seat. He didn't fall because Cooper slowed down so easy! That Hyatt women was turned talking to her friend and didn't even slow down before she hit us!"

It's Time for Jury Duty. Did Cooper Finch cause the accident by failing to signal? Did Alice Hyatt cause her own accident by failing to keep a proper lookout?

THE VERDICT

The law states that no driver shall stop without deciding it is safe to do so and without signalling his intention. In this case Cooper Finch had no choice--he had to stop. It had been raining and the windows were up. The only question of negligence that could arise would be whether Finch's brake lights were working.

On the other hand, in any rear collision, there is evidence that the following driver was guilty of excess speed or following too closely just because the accident happened. Cooper Finch was also following a car and he was able to stop. The plaintiff, Alice Hyatt, should have been able to do so. "It is the duty of the driver of a motor vehicle not merely to look, but to keep an outlook in the direction of travel; and he is held to the duty of seeing what he ought to have seen."

The jury decided in favor of the defendant, Cooper Finch.

CONCEPT IX: EXECUTING

The final product of all the identifying, predicting, and decisionmaking is the executing of a maneuver of your vehicle. There's not much to say about this part. It's all in the doing. You will learn to control the speed and power of your vehicle, to steer, and to brake successfully. Driver education and years of practice on the road will perfect these skills. Right now you can work on the identifying and predicting. They are every bit as important as being able to turn the steering wheel. Practice these skills every time you're on the road--as a pedestrian, on your bike, or as a passenger.

When you do start driving, there is one important thing to remember: with practice many driving skills become habitual. Those habits will carry you or scrape you through years of driving. It's your choice. Forming safe driving habits at the very start can help you drive through life as a responsible considerate member of society.

CONCEPT IX: EXECUTING (cont)

Objectives	Activities
1. Students will be able to define execution in relationship to IPDE.	1. After all information has been processed by the driver, the driver must act upon it. Ask what the most important link of the IPDE chain is. (All are vital.) If you make a bad decision and thus the maneuver causes an accident, is this an execution failure?
2. Students will examine their attitudes toward formation of safe driving habits.	2. Discuss the process of forming habits. What habits do the students have? What motor habits, such as those related to riding a bike? Has anyone tried to break a bad habit? Why is it important to form habits for safe, efficient driving when you first start to drive?
	3. Distribute the master for reproduction #20, Driving Habits, p. 429. The purpose is to encourage students to examine their habits in traffic situations and how those habits will affect their habits as pedestrians, bicyclists, trail-bikers, or passengers. (They do not have to share their answers unless they want to.) Read the directions for each column, have the students label each, and give them time to fill in

CONCEPT IX: EXECUTING (cont)

Objectives	Activities
	the grid formed by these eight columns: 1. Check the habits you had 5 years ago. 2. Check the habits you'll have 5 years from now. 3. Put a G if you feel good about the habit; a B, if bad. 4. Put an M if your mother has a similar habit. 5. Put an F if your father has a similar habit. 6. Check the habits you have tried to break. 7. Put an R if the habit involves a physical, emotional or mental risk. 8. Check (✓) the habits that cost you money, time, embarrassment, etc. After the students have finished the grid, have them discuss it. Ask: Have you learned anything about your habits? Are you more like your mom or dad? Have you learned anything about the kinds of driving habits you might have? Have you learned anything about habits that will affect you when you learn to drive?

DRIVING HABITS

List habits you have as a pedestrian, bicyclist, trail-biker, or passenger. These should be things you actually do, not what you think you should do.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

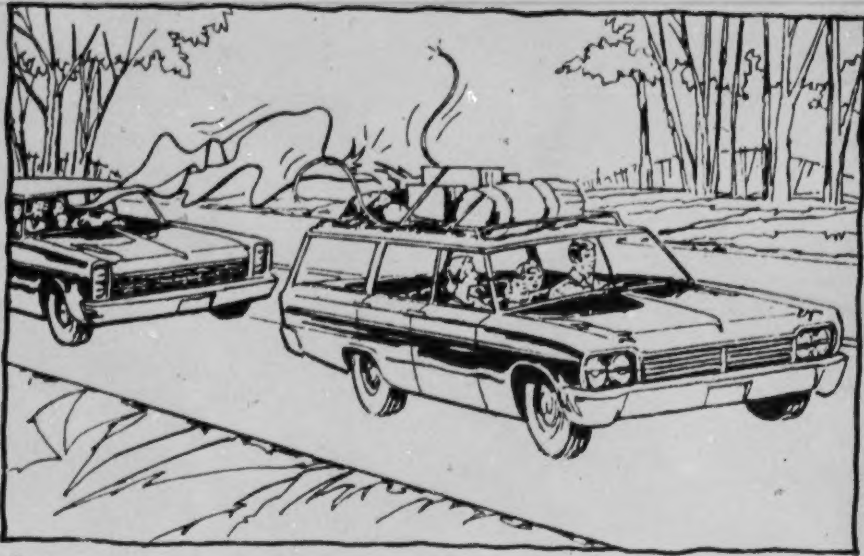
TEACHER INFORMATION - CULMINATING ACTIVITIES

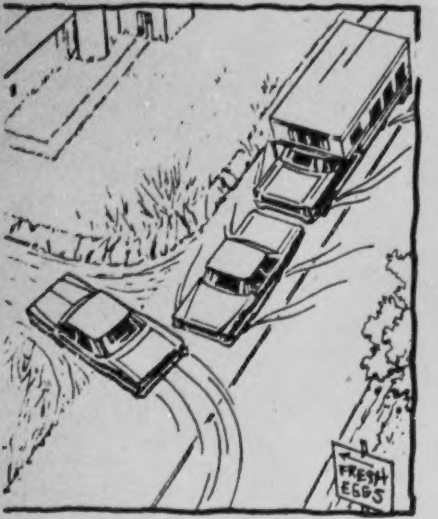
1. Have the students analyze the six accidents described in the article, Six Ways to Get Away With Murder, p. 432. Take the accident from each drivers' viewpoint. Ask for each driver: Did that driver cause the accident? How? Was a failure of I or P or D or E involved? At what point was the accident unavoidable? Is it as important to predict your effect on traffic as the traffic's effect on you?
2. Use the questions on p. 435 to aid discussion and evaluation.
3. See if the students can identify the drivers in the article, "Who's Who," p. 439.

SIX WAYS TO

ARE YOU A MURDERER? Not the kind guilty of premeditated killing, of course. But does your careless, unthinking behavior at the wheel of a car leave death in your wake, just as surely as if you had pulled the trigger of a gun?

That's a repugnant thought, isn't it? One from which anyone would recoil in horror. Yet it happens too often. Here are some of the ways:





1.

You're driving along a two-lane country highway, doing 55 mph. Suddenly you come upon a sign pointing to a farm with fresh eggs for sale. On the spur of the moment you decide to stop. Without using your turn signal, you hit the brakes [illegible] st left turn into the farm drive, cutting in front of a car approaching in the other lane. The driver brakes hard and you squeak through, but the other guy isn't so lucky. A truck camper coming up behind him can't stop in time and plows into his rear, killing both the driver and his passenger.

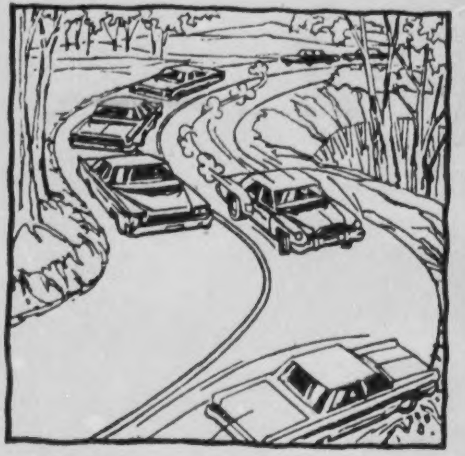
Cause: You made a sudden, unexpected movement without warning and turned in front of opposing traffic without waiting for it to clear.

2.

You're starting out from home on vacation. You've left the rear of the station wagon pretty clear for unobstructed rear visibility and a place for the kids to nap during the long drive. The top carrier, though, is loaded with assorted gear and two or three suitcases. As a precaution against rain you've covered the top cargo with an improvised tarp, actually a discarded plastic shower curtain tied down with wrapping twine. Everything seems snug and secure, but you've never thought about the tearing, whipping power of the windstream over a fast-moving car.

Unknown to you, a tie-down snaps—and then another. The wind gets under the plastic, and suddenly it rips loose and plasters itself across the windshield of a car behind. The following driver, instantly blinded, hits the brakes in panic, spins out and smashes into a concrete abutment. The father, mother and three kids are killed. A five-year-old boy is the only survivor.

Cause: You didn't cover your roof cargo properly and tie it down securely.



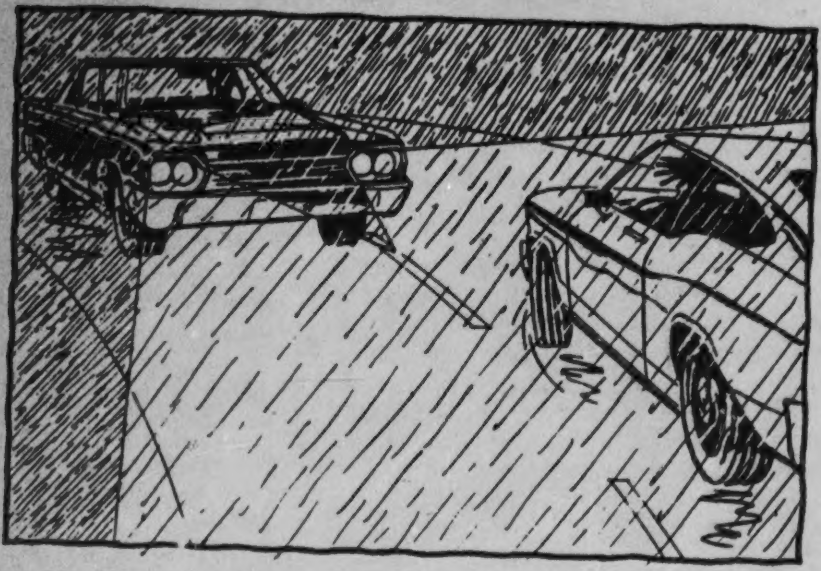
3.

It's a beautiful Sunday in autumn and the leaves are turning into their full splendor. You and your spouse decide to drive into the countryside along one of those peaceful two-lane highways that wind through the hills, with maple, sycamore and oak in their showy colors all along the road. The speed limit is 55, but beauty should be savored, so you're doing about 30. Before you know it, a line of cars is queued up behind you. They can't pass because of all the hills and curves. Finally a teenager in a souped-up, aging sedan gets impatient, pulls out of line and floors the gas pedal. He just makes it, but only because an auto approaching from around the next bend has to take to the ditch to avoid a head-on and rolls over. The injury toll is three dead and two seriously injured.

Cause: You were driving too slow for conditions and didn't get off the road to enjoy the scenery.

Reprinted from Family Safety magazine, Winter 1974-75.

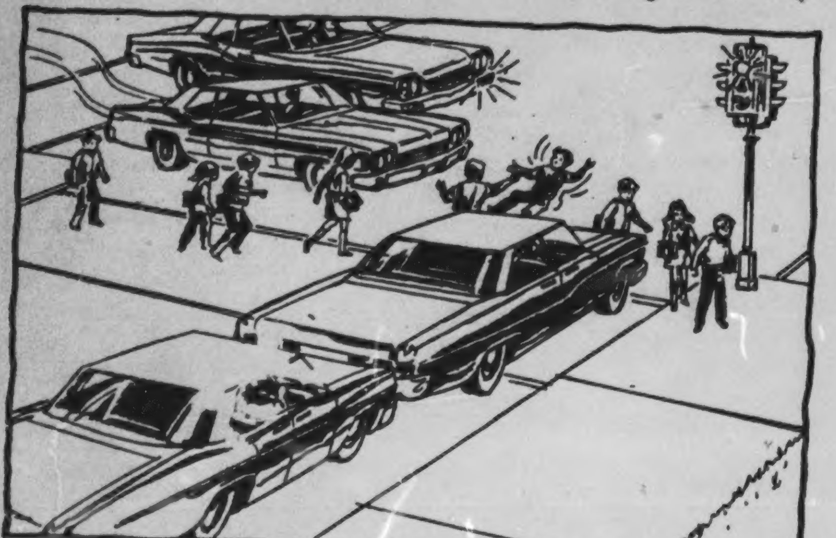
GET AWAY WITH MURDER

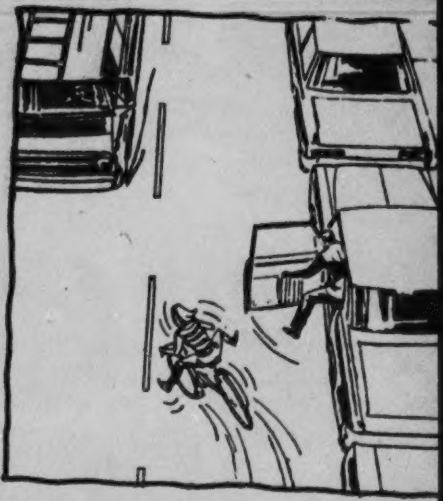


4.

You're returning home from a party late at night. You're tired, the road is dark and rain is cascading against your windshield, so you have your brights on as you strain to see ahead. You round a curve and meet another car coming toward you. The other driver quickly dims his lights, but with bleary eyes and a fogged mind you're afraid of losing sight of the road, so you don't bother to switch yours. Too bad. The combination of darkness, rain on the windshield and the bright glare of your headlights causes the other driver to drop a wheel off the edge of the pavement. He skids, loses control and hits a utility pole broadside. An eight-year-old girl sitting in the front seat is thrown from the car and killed.

Cause: You failed to switch to low beam when meeting a car.





5.

After circling the block in busy downtown traffic, you finally spot a parking place at the curb. You back in and park. After turning off the ignition and unbuckling your seat belt, you open the car door to get out. An 18-year-old girl is whizzing down the street on a 10-speed bike. When you open the car door without warning, she has to swerve suddenly to avoid crashing into it. Her maneuver is too panicky, too violent, and she loses control. The girl and the upset bike go sliding into the left lane, where a passing repair man's van, unable to stop or veer in time, runs over her. She dies two hours after being rushed to a hospital.

Cause: You opened your car door suddenly without looking.

6.

You try to beat a stale green light at an intersection but it changes before you quite get there. So you brake hard and stop, but not soon enough to avoid blocking the crosswalk. Another car pulls up right behind you, leaving a gap too small for pedestrians to sidle through. A group of fourth-graders are coming home from school, and they run around the front of your car as they cross the street. One of the kids playfully pushes another, and he stumbles into the path of a car that swerves a little to its right to get around a late-signaling left-turner.

The child suffers a concussion and dies 12 hours later in the hospital.

Cause: You blocked the crosswalk, forcing pedestrians into too-close proximity to vehicles.

Murder is a strong word. Accessory to murder also has an evil ring to it. Even manslaughter, while implying less culpability, leaves its victims no less dead.

You may have committed one of the misdeeds recounted here. Perhaps you just came close—a near miss. You got away without a scratch. No one hauled you off to jail. Hopefully, no one was even hurt. Maybe you drove blithely on your way, never realizing the havoc left in your wake, or the shaken motorists you placed in heart-stopping jeopardy.

A driver is not an island unto himself if he is to qualify as a defensive driver. He shares the road, as responsible to others as to himself. He accepts that responsibility. Here's how he does it:

Drive smoothly

Weaving in and out, cutting in on other drivers, spurting through narrow gaps in traffic, abrupt changes in direction—all are accident makers. Even alert drivers may not be able to respond fast enough to avoid disaster.

Driving too fast or too slow can cause trouble, too. Both result in unnecessary passing—by you or by other drivers. If someone is itching to get around you, don't compete. Help him on his way.

Unnecessary lane changing and passing create what traffic experts call "conflicts in the traffic stream." And conflict is what it has always been—a form of warfare that can lead to bloodshed.

Signal your intention

Surprise is a menace on the highway. Whether slowing, turning or just changing lanes, use your brake lights and turn signals early enough to let other drivers know well in advance what you are going to do.

You have a horn, too. Use it sparingly, but use it if necessary—to communicate and attract attention, not as a snarling expletive to call another driver an idiot.

Warn others of danger

If you're thinking of your fellow travelers' welfare, you may be able to tip off another driver to a danger he can't anticipate. Suppose you are headed south and pass a wreck or other roadway hazard in the northbound lane. Seconds later, around a curve, you meet another car speeding toward the unseen danger.

Flash your headlights on and off rapidly. This signal has long been used by truck drivers to warn of wrecks, icy roads, fog patches or any other dangerous conditions in the road ahead.

Allow plenty of room

Don't crowd another motorist. Tailgating is a foolhardy tactic that accounts for an enormous number of mishaps, equally dangerous to you and to the driver ahead.

Learn the two-second rule, a simple method devised by traffic experts to help you estimate a safe following distance at any speed. The idea is to follow at least two seconds behind the car in front of you (under bad driving conditions stretch the margin to at least three or four seconds). As soon as the driver ahead reaches a mark—a sign standard, a tar strip on the road, the shadow of an underpass -start counting: "one thousand and one, one thousand and two." That approximates two seconds. If you reach the marker before you finish counting, you are following too closely.

A special note: give plenty of room to motorcyclists and bicyclists, too.

Keep cargo in mind

Cargo sticking out the side or rear or things stowed on a top carrier can pose a fatal hazard for another driver. If you're carrying cargo—on the roof, in an open-gate station wagon or in a pickup—tie it down securely. You know how dangerous it is when you have to swerve to avoid hitting some obstacle in the road. Remember, too, that trailers can get loose. Bumper hitches are unreliable for high-speed, open-road trailering.

Keep your cool

Be patient and tolerant at the wheel. Psychologists affirm that you're more likely to have an accident when you're angry or uptight. The same is true of the other driver. Anything you do to upset him will increase the chances of an accident.

Courtesy is contagious, and that's one contagion we could welcome in epidemic proportions. Such a small gesture as letting a motorist get out of his driveway into a solid line of traffic will put at least two drivers in a frame of mind that augurs a safe trip for both of them.

Leave a margin for error

Let's face it: mistakes are made by the best of drivers on occasion. Make allowances for that. Leave a little bit of extra room—an "out" to the side or in front—that permits evasive action if the other driver makes a misjudgment or you happen upon someone whose reflexes may be dulled by sleepiness or alcohol. Look ahead with your mind, not just your eyes. Anticipate errors —note erratic behavior by a driver ahead and be ready to counter anything, read the approach signs for an expressway exit and expect a last-minute lane change by the driver who suddenly realizes that he's about to miss his turn-off, watch for the narrow-bridge warning and the fellow who shies away from the railing and edges across the center line.

Murder on the highway is not a nice thing to contemplate. But if you drive with skill, anticipation, and consideration for others, you will be neither its victim nor its perpetrator. ☐

DRIVING SKILLS: DISCUSSION QUESTIONS

1. What is the IPDE process?
2. How are a driver's senses used in identifying? How does a driver use his mental processes?
3. What is a good scanning technique? To what part of the IPDE process does this relate?
4. Name five (5) clues a driver must identify when traveling?
5. How can identifying clues when traveling on the roadway help a driver predict what another driver might do?
6. Explain the role of predicting in the IPDE process.
7. List two (2) factors which make predicting difficult and explain their effects on the driving task.
8. How does the IPDE relate to your driving ability?
9. Why is driving considered a complex process?
10. What is inertia? centrifugal force? How do they affect the driver and his vehicle?
11. Define peripheral vision and explain why it is important in driving.
12. What is the most important spot to watch when driving?
13. How is a person's vehicle affected by gravity?
14. List three (3) changes in roadway conditions which can be clues for predicting the effect of a vehicle's path of travel.
15. What is the relationship of time and speed to the decisionmaking process?
16. Why is it important to reduce speed when driving at night?
17. Who is responsible for calculating the posted speed limits to be used as guides by drivers on the road?
18. List four (4) important factors that relate to speed as a critical factor in driving performance.
19. Why are there a greater number of traffic accidents at intersections?
20. Define right-of-way laws and list at least two of these basic laws.
21. Explain the role of decisionmaking in the IPDE process and driving.
22. List four (4) decisions a driver makes each time he drives.
23. What is considered the main reason for rear-end collisions and where do they usually occur?
24. How much space is considered safe under normal circumstances for following distance and how can you check that distance?
25. Describe five (5) circumstances which may make it necessary for drivers to maintain greater following distances.
26. Define execution and describe its relationship to the IPDE process.
27. Are physical and/or mental skills used by drivers to execute in driving.
28. Describe the importance of forming safe driving habits.

ANSWER SHEET

DRIVING SKILLS: DISCUSSION QUESTIONS

1. The IPDE process is the way a driver "reads" and reacts to driving situations. It is a four-step process which includes a) identifying important elements in the traffic environment, b) predicting the effect those elements will have on the vehicles' path of travel, c) deciding how to react, and d) executing the maneuver decided upon. All the steps in the IPDE are inseparably linked together; each step must be performed accurately in order to drive safely.

2. When identifying, the driver must use his senses - visual, aural, tactile, and sense of smell - to get a complete and accurate picture of the traffic environment. The mental processes of the driver must sort out all these factors and recognize which elements are most important to the vehicle's path of travel.

3. A good scanning technique is using brief glances to check for important elements in the traffic environment; you must check to the center of your path of travel, to one side, to the center, to the rearview mirror, to the center, etc. It is a technique used in identifying.

4. Five clues a driver should identify are (a) road changes, (b) shrubbery or other structures blocking a driver's view, (c) weather conditions, (d) vehicle-pedestrian positions, and (e) traffic signs, signals, and markings.

5. You must identify a clue before you can predict its effect on your path of travel. You can't predict the effect of something you don't know is there.

6. Predicting is the part of the IPDE process by which drivers interpret clues they have identified and assess how the elements identified will effect their path of travel.

7. Two factors which make prediction difficult ar

   a) the difficulty in accurately judging distance and time relationships, especially between two moving vehicles.
   b) the fact that a driver cannot really know what other people will do. Some people will act reasonably, but others may behave erratically.

8. Your driving ability is only as good as your ability to identify, predict, decide, and execute. Accurate ability to complete the IPDE process is essential to good driving.

9 Driving is a complex process because the driver must process much information about the traffic environment rapidly and accurately in order to drive safely.

10. Inertia is the tendency of a body to resist change in motion. A moving vehicle tends to remain in motion and to move in a straight line. Centrifugal force is the resistance to change in direction. When a car enters a curve, the driver feels the effect of centrifugal force because the vehicle and the driver's body tend to resist the change in direction.

11. Peripheral vision is the ability to see at a wide angle to the side; it is important to have good peripheral vision in order to detect traffic clues in the side, upper, and lower ranges of vision.

12. The center of your path of travel where it meets oncoming vehicles is the most important place to watch. This spot should be 12 seconds away from your vehicle.

13. Vehicles are affected by gravity when going up and down hills. A vehicle will slow when going uphill and speed up when going downhill.

14. Changes in roadway conditions which will affect a vehicle are: rain, oil spots, broken pavement, bumps, or ice patches.

15. To make good decisions while driving, time is essential. In a moving vehicle, time is equivalent to the amount of space you will have to decide and to execute the decision. The driver controls the amount of time and space in which to make decisions by controlling the speed of the vehicle.

16. It is important to reduce speed when driving at night because sight distances are shorter and judgment skills are less accurate at night. Reducing speed means you have more time and space in which to react.

17. Traffic engineers are responsible for calculating the posted speed limits which guide drivers on the road.

18. Four important speed-related factors critical to driving performance are road surfaces, weather conditions, driver's physical condition, and the car's health and condition.

19. A greater number of traffic accidents occur at intersections because drivers do not always come to a complete stop or look carefully for other approaching vehicles.

20. Right-of-way laws are those laws that spell out which vehicle driver or pedestrian must yield and which may go when their paths meet. Basic right-of-way laws at uncontrolled intersections are:

    a) The first vehicle to enter an intersection has the right-of-way.
    b) If vehicles approach an intersection at approximately the same time, the vehicle to the right has the right-of-way.
    c) Also, turning vehicles must yield to oncoming traffic.
    d) Pedestrians have the right-of-way at all marked and unmarked crosswalks.

21. The role of decisionmaking in the IPDE process and driving is deciding what to do when driving after identifying pertinent factors and predicting their effect on your path of travel.

22. Answers will vary. They may include: when to stop, when to accelerate, when to yield, when to turn, when to signal, or how fast to travel.

23. Following another vehicle too closely is the main cause of rear-end collisions. They are most common in urban areas when vehicles make sudden stops before turning; they are also common on expressways.

24. A two second space between you and the vehicle ahead is a safe following distance under normal circumstances. To check that distance, choose a reference point well in front of the vehicle you are following. When that vehicle passes the reference point, count "one thousand one, one thousand two." If your vehicle has not yet passed the reference point, you may assume you have a safe following distance.

25. Conditions which may require a greater following distance are a) high speed, b) wet or icy roads, c) limited visibility, d) driver fatigue, and e) when following a motorcycle or emergency vehicle.

26. Execution is the physical maneuver the driver makes after identifying, predicting, and deciding the best course of action.

27. Execution involves primarily motor (physical) skills.

28. The driving task becomes easier when many common responses to traffic become habitual. If good habits are formed in the beginning, the driver will be a more responsible and efficient member of the HTS.

WHO'S WHO?

by Tom Dodds

MEET Phil Druid, Kent Harmon and Jess Pinker. Each has just finished a stint at the steering wheel.

Following are clues pertaining to each man's trip and also accounts of the trips these three drivers took. The trip stories are labeled A, B, C.

Carefully read the trip clues, then read the trip stories. Putting these together should tell which man is A, which is B and which is C.

CLUES

Kent Harmon:

Followed too closely.
Went both too fast and too slow for conditions.
Improperly used lights.
Should have paused before proceeding.

Phil Druid:

Made an improper turn.
Should have backed up.
Failed to give a warning.

Jess Pinker:

Made an improper turn.
Went too fast for conditions.
Made an improper stop.
Used poor judgment in passing.

Trip A

It was a cold, dry, clear day.

"A" had been driving for about five minutes when he discovered he was on the wrong road. So, he signaled, braked and pulled into a driveway to turn around. He stopped for a minute or so in the driveway to study a map.

He headed back to the last intersection where he stopped at the stop sign and signaled a left turn. He waited with his front wheels aimed straight ahead.

When oncoming and cross traffic cleared, he turned, entering a four-lane, two-way road. He straightened his wheels, allowing about a three-foot space between the right side of his car and the right edge of the pavement.

The speed limit was 65. A's speed was 65.

He approached a slow-moving car from the rear. Checking traffic behind him, he moved over to the left lane and passed, pulling back into the right lane when the car he had passed appeared in his rear-view mirror.

A sign told him that Glen Road (where he wanted to turn off) was two miles ahead.

He continued driving in the right lane, and began slowing down about a quarter of a mile from the Glen Road turnoff. He flipped his directional signal on about 350 feet from the turn.

He made the turn and went about a mile to the town of Camford. This was his destination.

He approached an intersection with a flashing yellow light. He slowed and checked traffic but did not stop, then continued on to the Burns Building parking lot where he pulled into a parking space just to the right of a delivery area.

Trip B

The day was overcast and the road was dry.

Driver B was traveling on a two-way, two-lane highway. His destination was Portville. The posted speed limit was 65. He was doing about 60 in his intermediate size car.

There was a motorcycle about 100 feet ahead of him.

He checked to his rear, then ahead in the oncoming lane and found it safe to pass. He sounded his horn, moved to the other lane and passed the motorcycle, moving back into the right lane when it was safe to do so

An expressway that was the last leg of his trip to Portville was just ahead.

He turned onto the entrance ramp and continued into the merging lane at approximately 40 miles per hour, watching for a safe place to blend into traffic. It looked hopeless, but at the last second a motorist on the expressway braked and let him squeeze in. He picked up speed and soon was cruising along at the posted speed limit—70 miles per hour.

The sky darkened and rain began to fall. Driver B switched his lights on low beam. As he neared Portville the rain changed to drizzle and then a heavy fog rolled in. He switched his low beams to high.

He left the expressway at the Portville exit and drove about half a mile when he was stopped by a train. He could have speeded up and made it across the two sets of tracks but he elected to play it safe. He waited patiently, almost even with the flashing lights. Then as the caboose cleared the crossing, he started across the tracks and managed to make it on time for his appointment in Portville.

Trip C

Driver C was on his way to the grocery store. The April day was more like winter than spring. It was snowing. There were patches of ice on the road and visibility was limited.

It was afternoon, but Driver C had his lights on—more so that he could be seen than see better. The posted speed limit was 40. Driver C was doing 37.

He was in the outer lane of a four-lane, two-way street. As he neared Belt Road, where he planned to turn right, he steered his car as close to the curb as possible and started his directional signal an adequate distance from the turn.

A pedestrian was crossing Belt Road so Driver C steered slightly to the left before turning. As the pedestrian cleared the crosswalk he proceeded with the turn.

Belt Road was two-lane, two-way. Driver C's speed was about 30. He soon found himself trailing a pokey driver by about 100 feet.

He decided to pass, so he checked and found things clear in the rear and oncoming traffic far enough away for him to get around safely. He then tapped his horn, moved to the other lane and accelerated.

Checking his rear-view mirror, he steared safely back into the right lane just as they went through an intersection. Driver C continued on Belt Road for four blocks and then stopped at a red traffic light. The front of his car protruded into the crosswalk and pedestrians were forced to detour a few feet to get past.

Two more blocks and he was at the SuperSave Market where he pulled into a convenient parking space in the parking lot.

Reprinted from Family Safety magazine, Spring 1973.

Answers to WHO'S WHO? Quiz

Driver A was Phil Druid.

It would have been safer to back into the driveway so that he could have reentered traffic moving forward.

When he made his left turn he should have turned into the inner (left) lane to avoid the possibility of conflict with oncoming, right-turning traffic.

He should have tapped his horn a time or two to warn the driver that he intended to pass.

Driver B was Kent Harmon.

He was following the motorcycle too closely. The interval he allowed would be safe enough between cars, but since a motorcycle is able to stop in a much shorter distance than a car, an increased interval is advisable.

His speed as he attempted to merge was too slow. It should have approximated the speed of traffic on the expressway. He was driving the posted speed limit while rain was falling and visibility poor. This was too fast for those conditions. Posted limits are for optimum conditions.

Low beams should be used in fog as fog reflects light and more will be reflected when high beams are used, making it more difficult to see.

After the train cleared the crossing he should have paused to make sure that there was no train coming from the opposite direction on the other track, hidden from view by the first train. And he also should have waited until the lights stopped flashing.

Driver C was Jess Pinker.

He should not have steered to the left before making his right turn. This feint might be interpreted by a following driver as a change of mind (with no turn at all) or a left turn. This driver might then attempt to pass on the right side.

Conditions—snow and ice—were such that a speed of only three miles per hour less than the posted limit would be too fast.

Passing in an intersection is taboo.

He obstructed pedestrian traffic when he partially blocked the crosswalk. However, once stopped in such a position, it's better to stay put than to try to back up, as some pedestrians may walk behind your vehicle or another vehicle pull up snug against your rear.

SELF-EVALUATION OF DRIVING ATTITUDES

TEACHER INFORMATION

The primary objective of this concept is to assist students in examining and clarifying personal attitudes and values that may affect their driving habits. Each driver has reasons for thinking and acting (driving) certain way. Driving an automobile is a social task--one that requires cooperation and patience from all involved.

Most youths between ages 14 and 16 are eagerly awaiting the opportunity to drive. Not all want to drive for the same reasons. Nor do all approach the legal driving age with the same beliefs, attitudes, and values. Some reasons given for wanting to drive are?

1. to get to and from school,
2. to get a job,
3. freedom,
4. mother and father want it,
5. dating.

In some cases, these are the reasons expressed, while more important reasons are left unexpressed. Individuals' self-concepts are important factors in determining attitudes with which they will drive automobiles.

Value clarification is intended to help persons approaching the driving age to more closely examine their true values and attitudes toward the concepts of safe driving.

The teacher may use the sample questions provided to begin the important task of value clarification. However, the teacher should remember that the students must do the clarifying. The teacher can only assist. The teacher must remember that there is no right or wrong answer for any individual. Individuals must select alternatives based on their own beliefs and values. This process is not intended to tell students that their values and beliefs are wrong; it should encourage them to compare their's with those of others. In some cases, people believe something to be true because they do not recognize that alternatives exist. Exchanging personal values and beliefs enables students to justify or modify their own beliefs and attitudes.

Each social interaction is based on the beliefs, values, and attitudes of the people involved. Poor attitudes may include the following:

1. Laws are too restrictive or unnecessary.
2. Law enforcement officers are "out to get the

TEACHER INFORMATION (cont)

young driver."

3. Excessive speed is a sign of skill.
4. Following safety rules is unmanly or a sign of fear.
5. Risk-taking is acceptable to everyone.
6. Power and speed are signs of strength.

Examples of desirable emotional traits in a safe driver are:

1. Willingness to take responsibility for your own driving.
2. Driving defensively with a willingness to compensate for the mistakes of others.
3. Courtesy and consideration for others using the highway transportation system.
4. Giving full attention to the driving task.
5. Making sound driving decisions based on safe-driving concepts.
6. Not bragging about one's driving skill or using it to gain attention.
7. Driving in a steady, uneventful manner without causing unnecessary traffic conflicts.

CONCEPT: SELF-EVALUATION OF DRIVING ATTITUDES (cont)

Objective	Activities
Students will examine and clarify their attitudes regarding driving.	1. Discuss the masters for reproduction (pp. 18-24 and 18a). Break the class into small groups to facilitate discussion. 2. Discuss or have students write essays or stories on these topics: a. Learning to drive a car is very important to you. Why does it mean so much to you? b. Owning a car makes you feel important. Why? c. The driving task is much more complex today than it was 50 or even 25 years ago. List reasons why. d. What are the most essential things you hope to learn in driver's education? What do you need to learn to drive a car skillfully and safely? e. "Accident" is a term used to describe vehicle crashes. What is your definition of "accident?" Answer: the student's version of "an unintended event which results in

CONCEPT: SELF-EVALUATION OF DRIVING ATTITUDES (cont)

Objective	Activities
	damage or injury." f. Who is responsible for traffic safety? 3. Have students list what they consider to be poor driver attitudes and illustrate in cartoons, etc. 4. Discuss or use as a role-playing activity: "If you were a traffic policeman, what would you say to a violator if he said, 'One little violation doesn't hurt from time to time.' " 5. Invite a guest speaker such as a psychiatrist, psychologist, or school counselor to define emotions, attitudes, and values and how people acquire them. 6. Show film Attitudes and Emotions, or tune in to the "Inside/Out" television series. 7. Discuss how a person can avoid letting his or her emotions cause an accident. Use the article, "Sure You Can be Accident Prone," p.449to spark discussion.

VALUE CLARIFICATION QUESTIONS

1. If I were empowered to enact STOP sign regulations, I would . . . .
   a. strictly require a full stop at all STOP signs
   b. allow drivers to almost stop
   c. remove the yield requirement
   d. not require a stop if no cars were present
2. If you were a police officer and you saw a driver going 25 mph in a 20 mph zone, what would you do?
   a. ignore it but stop him if he goes 26 mph
   b. issue a warning ticket
   c. stop him and give him a verbal warning
   d. issue a summons
3. If you could set speed limits what would you do?
   a. abolish all speed limits
   b. raise all speed limits
   c. raise some speed limits
   d. leave them as they are
4. If you could pass a law covering the right-of-way at uncontrolled intersections, what would you do?
   a. abolish all right-of-way regulations
   b. give the first driver in the intersection the right-of-way
   c. not change the right-of-way rules
5. If you were a police officer and you saw a driver on your left zoom through the intersection and force the driver on his left to slide to a stop, what would you do?
   a. ignore it
   b. verbally warn him
   c. write a warning ticket
   d. write a summons
6. If you were a police officer and you saw one vehicle tailgating another in traffic, what would you do?
   a. ignore it
   b. verbally warn him
   c. write a warning ticket
   d. write a summons
7. If you were a police officer and saw your best friend's car parked in a no parking zone and you knew other people were watching you, what would you do?
   a. ignore it

b. tell him about it

c. write a parking ticket

8. Pretend you are a legislator who must defend his position on vehicle inspection. Which would you choose?

a. no vehicle inspection at all

b. inspection when vehicles change hands

c. inspection once a year with a spot check of 10% of the vehicles each month

9. How do you feel about the maintenance of a car?

a. It should be each driver's own business

b. It should be an enforcable law and drivers should receive warning tickets for failing to abide

c. It should be enforced by the issuance of a summons for defective equipment

10. If you saw a driver back into a car and drive away without leaving information, what would you do?

a. run him down and force him to provide information

b. get his number and leave it on the car that was hit

c. ignore it and go on about your own business

Sure You Can Be Accident Prone

by Tom Hirsh

YOU'RE a healthy, sane, hard-working adult with a good share of common sense. You've never had a serious accident and don't intend to. Right?

Knock on wood.

In a matter of hours you could become accident-prone—stumbling, fumbling, skidding your way through a series of accidents ending in the hospital or worse.

You may think of the accident-prone person as a rebellious dare-devil with an unhappy home life, a poor work record and a tendency to hit the bottle a bit too often.

That's partly right. Studies have shown that people with permanent psychological problems often do have more than their share of accidents.

But most accidents involve normal, healthy people who have become *temporarily* accident-prone. Dr. Morris Schulzinger studied 35,000 accidents over a period of 18 years. He concluded: "In the course of a life span almost any normal individual under emotional strain or conflict may become temporarily 'accident-prone' and suffer a series of accidents in fairly quick succession."

You're most likely to have an accident when you're sick, when you're fatigued from working extra hours or after you've had a few drinks, says Dr. Frederick McGuire of the University of California. Personal problems can also set you up for an accident, according to Dr. McGuire. "A college student may be worried about low grades; an unmarried woman may be fearful she is pregnant; a man may be in the process of divorcing his wife; financial burdens may be pressing in on him; his child may be hospitalized with a long-term illness."

During those times of stress it's easy to forget about safety. Your mind is on other things—brooding over unpaid bills, boiling about a sharp remark from your spouse, agonizing over the shooting pains in a molar. You're feeling irritable and short of patience. That's when you're most likely to run a stoplight, pull out into traffic too soon or stick your hand under the lawnmower before the blade comes to a full stop.

In Washington state the department of motor vehicles designed a study to determine how drivers react to emotional stress. The research focused on 410 persons involved in divorce proceedings. Investigators found that the drivers studied had more accidents than usual during the six months before and after filing for divorce.

The effect of emotional stress also showed up in a Michigan study of 96 drivers involved in fatal accidents. Researchers discovered that one fifth of the drivers had some upsetting experience in the six hours preceding the accident. In many cases stress among males stemmed from an argument with their wives.

Most women undergo a regular cycle of emotional stress. A California researcher studied a group of high school and college girls involved in accidents. Records revealed that the women suffered more accidents during the menstrual and premenstrual phases of their cycle.

When a mother is under stress she may have a hard time keeping an eye on her young children. Dr. Roger Meyer investigated a group of Boston preschoolers who had been admitted to the hospital with accidental injuries. He found that more than half of the mothers of the victims were suffering from some type of health problem when the injury occurred. Typical complaints included migraine headaches, menstrual cramps and gall bladder attacks. The largest number of injuries occurred just before dinner, when the children were hungry and tired and mother was busy cooking.

Dr. Meyer cites the example of Billy, 22 months old. "He swallowed a dozen iron tablets that had fallen to the floor unnoticed during the process of moving to a new home. His pregnant mother was unusually tired, had failed to provide him with his usual nap or dinner, and had not been able to keep an eye on him during the process of moving."

Even happy occasions can generate excitement and make a person forget ordinary precautions. Marriage, birth of a baby, outstanding personal achievement and marital reconciliation are among the items on a list of stressful life events compiled by psychiatrists Thomas Holmes and Richard Rahe.

Since no one can go through life without encountering stress, the trick is to know how to deal with pressures and come out on top. Here are some techniques that may prove useful.

Reprinted from Family Safety magazine, Fall, 1974.

Don't Bottle Up Your Emotions

One of the best ways to get rid of destructive emotions is to talk about them. This works at home or at work. Don't let anger or resentment build up. Pick an understanding person you trust and let it all out. Or if you have a grievance, talk to your boss or the person responsible for the problem.

A New York psychiatrist studied two groups of employees at a large metropolitan department store. One group consisted of persons who had at least five accidents in five years. The second group had an accident-free record.

The study revealed a striking difference between the two groups in the way they handled anger. The accident repeaters could not let out their anger; they just bottled it up. The non-accident employees were able to vent their anger when necessary.

Exercise To Loosen Tension

Any physical activity that loosens up your muscles can help relieve nervous tension. Touch your toes 25 times. Or do some push-ups and sit-ups.

Jog around the block. Running is one of the best all-around exercises because it involves many different muscles and gives the heart and lungs a bit of a workout, too. If you aren't up to running, try walking.

You can even exercise at your workplace. Yoga enthusiasts have discovered that simple stretching exercises can be very relaxing.

Relax your neck and let your head drop forward onto your chest. Slowly rotate your head in a circle, over one shoulder, around and over the other. Let your head hang limp the whole time. Reverse directions.

Stretch your arms out to the sides and hold them at shoulder height for five to six seconds. Relax. Repeat six times.

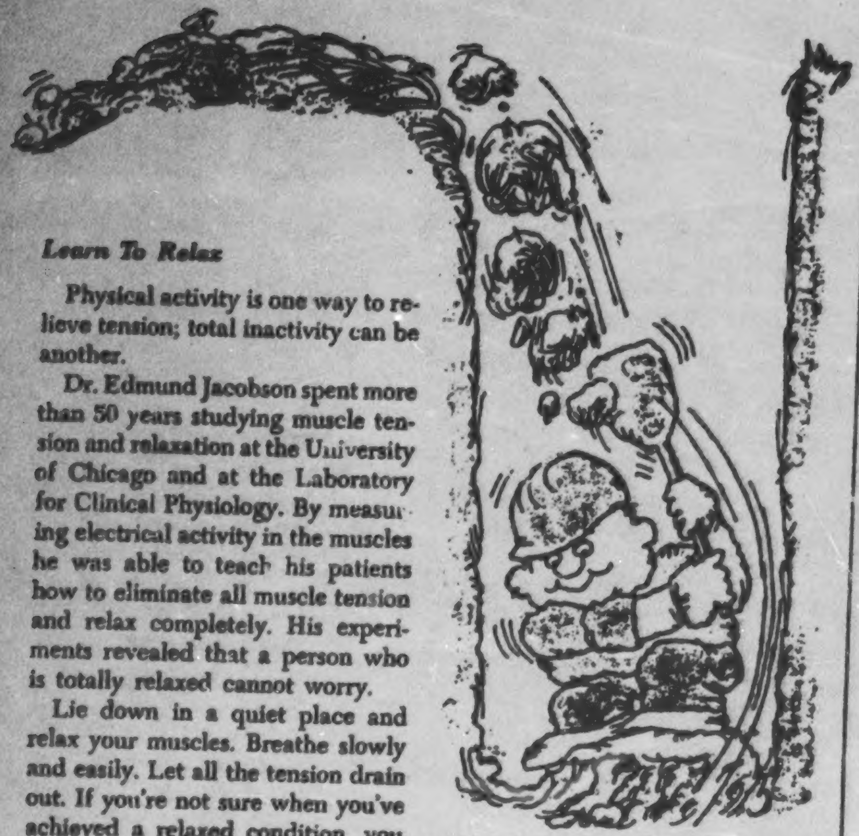
Lift one leg off the floor and stretch it out in front of you as far as you can, leading with the heel. Hold this position for five to six seconds and then relax. Do the same with the other leg. Repeat six times.

Watch For Weak Moments

Learn to recognize the times when you're most vulnerable to accidents—the times when you're unusually excited or depressed or just forgetful. Then make adjustments.

For example, when you've driven a long way and your eyelids are heavy with fatigue, you know you're more susceptible to accidents. So you compensate by stopping for a rest and a cup of coffee, letting someone else drive for a while or doing a few stretching exercises to perk up.

Apply the same caution when there's an illness in the family or following an argument with your spouse. A cup of coffee won't help, but you can say to yourself, "I'm feeling uptight. I've got to be extra careful or I'll have an accident."



Learn To Relax

Physical activity is one way to relieve tension; total inactivity can be another.

Dr. Edmund Jacobson spent more than 50 years studying muscle tension and relaxation at the University of Chicago and at the Laboratory for Clinical Physiology. By measuring electrical activity in the muscles he was able to teach his patients how to eliminate all muscle tension and relax completely. His experiments revealed that a person who is totally relaxed cannot worry.

Lie down in a quiet place and relax your muscles. Breathe slowly and easily. Let all the tension drain out. If you're not sure when you've achieved a relaxed condition, you might try tensing your muscles, then letting go. The contrast should give you an idea of what relaxed muscles feel like.

Start with the muscles of your feet, then move on to your ankles, legs, stomach, arms and face. Most people hold a lot of tension in their jaw, tongue and the muscles around the eyes. Try letting your jaw slacken and your tongue relax. Instead of looking directly at a single object in front of you, don't focus on anything. Just relax your eyes and let the whole field of vision come to you.

At times it may be impossible to lie down. In that situation you may still be able to relax some of your muscles. For example, when sitting, relax your legs and feet.

Relaxation is like any skill—the more you practice the better you get. Advocates of transcendental meditation, a Hindu relaxation technique, practice twice a day for a period of 20 minutes. Many are able to achieve a high degree of relaxation.

Get Busy To Forget Worries

You can often eliminate worries by putting your mind to work on something else. Army psychiatrists used this principle in treating men who suffered from emotional shock during World War II. The men had no time to brood over their experiences because they were kept busy with fishing, hunting, golfing, photography and gardening.

Other people have buried their worries by throwing themselves into their work. At the height of his career Winston Churchill was asked if he worried about his tremendous responsibilities. Churchill, who worked 18 hours a day, replied: "I'm too busy. I have no time for worry."

You can use the same principle yourself to keep your mind off your problems. Throw yourself into your work. Or take a class in the evenings. Join the local bowling league. Go out and make some new friends. A busy schedule can squeeze your worries out of your mind. □

Perilous Periods

Psychiatrists Thomas Holmes and Richard Rahe have prepared a list of important changes in life which cause stress. Some events are tragic, others may be welcome, but all can cause a person to become careless and forgetful and may lead to accidents. The more points, the more stress.

Rank	Life Event	Points
1	Death of spouse	100
2	Divorce	73
3	Marital separation	65
4	Jail term	63
5	Death of close family member	63
6	Personal injury or illness	53
7	Marriage	50
8	Fired at work	47
9	Marital reconciliation	45
10	Retirement	45
11	Changes in family member's health	44
12	Pregnancy	40
13	Sex difficulties	39
14	Gain of new family member	39
15	Business readjustment	39
16	Change in financial state	38
17	Death of close friend	37
18	Change to different line of work	36
19	Change in number of arguments with spouse	35
20	Mortgage over $10,000	31
21	Foreclosure of mortgage or loan	30
22	Change in work responsibilities	29
23	Son or daughter leaving home	29
24	Trouble with in-laws	29
25	Outstanding personal achievement	28
26	Wife begins or stops work	26
27	Begin or end school	26
28	Change in living conditions	25
29	Revision of personal habits	24
30	Trouble with boss	23
31	Change in work hours, conditions	20
32	Change in residence	20
33	Change in schools	20
34	Change in recreation	19
35	Change in church activities	19
36	Change in social activities	18
37	Mortgage or loan under $10,000	17
38	Change in sleeping habits	16
39	Change in number of family get-togethers	15
40	Change in eating habits	15
41	Vacation	13
42	Christmas	12
43	Minor violations of the law	11

JUST FOR FUN

SAFETY TIDBITS

Misfits are crash prone

The "socially obstreperous" person is more likely to die in a car accident than the well-adjusted driver, according to an article in the Archives of General Psychiatry.

A team from Johns Hopkins School of Medicine studied the social characteristics of 50 men killed in traffic accidents in the Baltimore area. Friends and family of the men revealed in interviews that the victims were often belligerent, negative and hyperactive.

More than half of the victims had a blood alcohol level sufficient to impair driving.

Expletive substituted

Harry Hurt of Houston, Texas, wanted to have a personalized auto license plate with his name on it, but someone had beaten him to "HURT." So he now sports license plates saying "OUCH!" on his car.

For the birds

Someone is apparently trying to regulate bird traffic. A traffic sign reading, "Speed Limit 30," was spotted at the top of a tall evergreen in Fort Wayne, Indiana

What's in a name?

An Edmonton, Ontario, man, accused of driving 70 miles per hour in downtown Edmonton, said he wanted to see the traffic lights were synchronized. He told the judge he felt safe driving through red lights because the police were behind him with their sirens blaring.

His name? Norman Speedy.

Familiarity breeds contempt

Policeman Al Lankin chased a speeding car through the Florida Keys and thought it looked familiar.

It was. When he got close enough to read the license plate he discovered he was chasing his own car.

After stopping the vehicle, Lankin asked the driver if he owned it. "Nope," was the reply. "Borrowed it from a friend." Patrolman Lankin then became decidely unfriendly, charging the driver with possession of a stolen vehicle, driving while intoxicated and having no license.

What's your sign?

Does your birth date determine what kind of driver you are? That depends on what you think of astrology. Anyway, the Automobile Association, a British drivers' club, had the London Astrology Centre work up charts especially geared to road habits. Here's what the stars said:

Aquarius is the sign of the driver who likes the wind in his hair.

Pisces drivers appear to be dreamy, but in reality they are power maniacs hiding behind a meek interior.

Aries suggests overfondness for speed and dangerous showing off in the road.

Taurus car owners take extra good care of their vehicles, polishing and tuning them up, but with little real love for driving them.

Gemini drivers are just the opposite. They enjoy the going and are a bit disappointed when they arrive someplace and the trip is over.

Cancer is the sign of the "family motorist," who needs the back seat full of children to feel at home.

Leos look to their cars as status symbols and tend to buy a lot more

Reprinted from Family Safety magazine, Fall, 1974.

horsepower than they really need.

Virgo drivers see themselves as extremely careful, always watching the gauges and quick to blame any other driver on the road for any mistake.

Libras are the nonaggressive sort it is a joy to have in other cars-an insurance company's dream.

Scorpio suggests quick-silver, changing moods, cool and logical one moment, rash and emotional the next.

Sagittarius behind the wheel is the original "vroom-vroom," slapdash and flashy.

Capricorns never break the rules.

Just a thought

If you had your head where you have your bumper would you ever have an accident?

No house call

Firemen at Henrico County Fire Station 8 in Virginia had the unusual experience of havine a fire come to them.

A driver, whose car engine had caught on fire, wheeled into the station, where the firemen promptly extinguished the blaze.

Fear of a fire a poor excuse

An often-used excuse for not wearing a safety belt is fear of being trapped in a post-crash fire. But automobile fires are rare, according to studies released by Calspan (The Atuomobile Crash Injury Research Program at Cronell Aeronautical Laboratory) and the Highway Safety Research Institute of the University of Michigan.

Since the 1950's, Calspan has been collecting in-depth data on injury-producing accidents. Less than one-half on 1 per cent involved fire of any kind.

A maximum of 650 fatalities may occur annually in post-crash fires, according to the report. However, there are 40,000 or more traffic fatalities resulting from the victim being thrown from the car, hitting the windshield or being crushed against the steering wheel.

Bike safety standard set

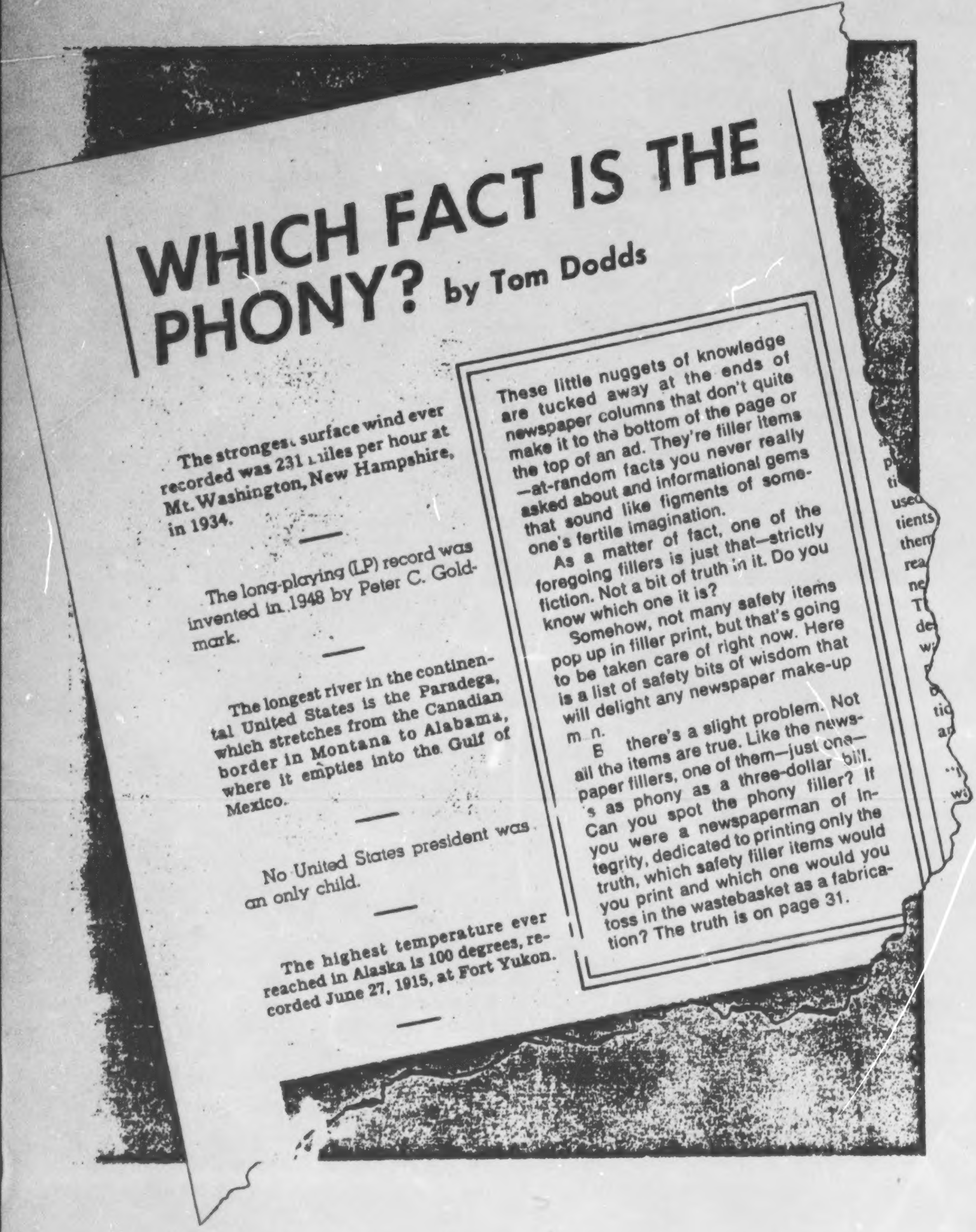
Bicycles sold in interstate commerce after January 1 must comply with safety regulations set by the Consumer Product Safety Commision under the authority of the Federal Hazardous Substances Act.

An estimated 419,000 persons required emergency room treatment in 1973 for injuries associated with bicycles. Approximately 17 per cent of the injuries were attributed to mechanical and structural factors.

The frame, steering system, wheels, and brakes will have to meet requirements for safe construction, effectiveness, strength and performance.

Gravel guides blind

The city of San Diego, California, is installing cemented-down gravel strips across busy intersections to provide guides to blind persons crossing the street.



WHICH FACT IS THE PHONY?

by Tom Dodds

The strongest surface wind ever recorded was 231 miles per hour at Mt. Washington, New Hampshire, in 1934.

The long-playing (LP) record was invented in 1948 by Peter C. Goldmark.

The longest river in the continental United States is the Paradega, which stretches from the Canadian border in Montana to Alabama, where it empties into the Gulf of Mexico.

No United States president was an only child.

The highest temperature ever reached in Alaska is 100 degrees, recorded June 27, 1915, at Fort Yukon.

These little nuggets of knowledge are tucked away at the ends of newspaper columns that don't quite make it to the bottom of the page or the top of an ad. They're filler items —at-random facts you never really asked about and informational gems that sound like figments of someone's fertile imagination.

As a matter of fact, one of the foregoing fillers is just that—strictly fiction. Not a bit of truth in it. Do you know which one it is?

Somehow, not many safety items pop up in filler print, but that's going to be taken care of right now. Here is a list of safety bits of wisdom that will delight any newspaper make-up men.

B there's a slight problem. Not all the items are true. Like the newspaper fillers, one of them—just one—'s as phony as a three-dollar bill. Can you spot the phony filler? If you were a newspaperman of integrity, dedicated to printing only the truth, which safety filler items would you print and which one would you toss in the wastebasket as a fabrication? The truth is on page 31.

Reprinted from Family Safety magazine, Fall, 1974.

634

Safety experts estimate that more than half of the 10,000 pedestrians struck and killed each year by automobiles had been drinking.

You can't see, taste or smell carbon monoxide gas.

A heavy meal can cause drowsiness in drivers. It's better for a motorist to eat several light snacks during a trip than one substantial meal.

Energy increases as the square of velocity. Double your speed and the impact in an auto crash is four times greater.

Proper inflation is the most important factor in tire safety and tire mileage.

After four hours behind the wheel, the average driver takes about 20 per cent longer between steering wheel corrections.

In a night fog headlights should be on low beam for best vision, since fog reflects headlight glare.

Allow more following distance when driving behind a motorcycle.

For every 10 degree dip in temperature, tire pressures drop about one pound.

One out of every four vehicles on the highways is running on an under-inflated tire, according to the National Bureau of Standards.

Keeping dashboard lights dim at night helps you see the road better.

Wet brakes can be dried out by applying a little pressure on the brake pedal for about 50 to 100 yards. The heat generated by the friction will dry out the brakes.

Half of all injury-producing accidents occur at speeds of 40 miles per hour or less.

Windshield wiper blades should be replaced as soon as they start to streak, regardless of age.

Lights should be on low beam in an area where there are pedestrians. This lessens the chances of pedestrians becoming blinded into committing a hazardous act.

A wall or garage door makes a good reflector in which to check to see if both your headlights are working.

A car's ignition should be turned off immediately after an accident, just in case there is a fuel tank rupture.

Authorities recommend that a motorist, encountering a deer in the road at night, should switch headlights to high beam and refrain from sounding the horn.

Your eyesight needs to be at least 20/40 for you to be able to respond to road signs and signals at legal highway speeds.

Dirty headlight lenses can reduce illumination as much as 25 per cent.

Strong black coffee will not offset the effects of alcohol. Only time will eliminate alcohol from the bloodstream.

When the rear of your car starts to skid, it's important to make steering corrections promptly. If the rear has swung around more than 20 to 25 degrees there's little chance of recovery.

Vision studies show that your sight distance shrinks the faster you go. At 20 miles per hour a driver can identify objects 80 feet further away than he can at 60 miles per hour.

A person who eats a warm, nourishing breakfast before driving to work is less likely to have an accident on the way.

The highest proportion of intoxicated drivers is on the road after midnight.

Friction is a vital factor in a car's stopping time. Tires bouncing over an uneven surface spend part of the time off that surface, thus lessening the amount of friction and increasing the stopping distance, sometimes as much as 50 per cent.

ANSWERS:

First Page: There is no Paradega River in the United States.

Second Page: The paragraph about the deer is false. If you encounter a deer at night, leave your headlights on low, so that you don't blind the deer and sound your horn to frighten it off the road--just the opposite to what was stated in the fille .

WORD PLAY

WHAF

by Tom Dodds

Safety Acronyms – a Fun Exercise

GULP

JERK

MESS

SNUFF

ADCOMSUBORDCOMPHIBSPAC

Those might look like letters you dredged up at random from your alphabet soup, but they're really much more than a set of soggy symbols from a soup bowl.

It's the Navy's short-form name for Administrative Command, Amphibious Forces, Pacific Fleet, Subordinate Command. It's also the longest term appearing in the latest edition of the *Acronyms Dictionary.*

Acronyms are words or meaningful combinations of letters that are formed from portions of other words. You use and hear them more than you realize.

For instance, you've heard of radar—that's an acronym for Radio Detecting And Ranging. You put zip (Zone Improvement Plan) codes on letters. You might refer to gestapo-like (GEheime STAats-POlizei) tactics and how the situation is snafu (Situation Normal All Fouled Up). Have you ever printed SWAK (Sealed With A Kiss) on an envelope, contributed to CARE (Cooperative for American Relief Everywhere), had an EKG (electrocardiogram) or seen MASH (Mobile Army Surgical Hospital) on TV (television)?

You can CHOKE (Care How Others Keep the Environment), PUSH (People United to Save Humanity), GASP (Group Against Smog and Pollution) and LEAP (Legal Elections in All Precincts).

And then there's the hard-to-pronounce but frequently heard TGIF (Thank God It's Friday).

Acronyms with a safety slant are few and far between. OSHA (Office of Safety and Health Administration) is one that's in the news frequently these days. A Livonia, Michigan, construction company labeled its safety drive ZAP (Zero Accidents Program).

It's about time safety got solidly on the acronym scoreboard with a few expressions of its own.

With a little word shuffling and a reaching-for-it twist here and there, a short cut approach to safety can be fashioned—acronym style. It's mostly in fun, but who knows, maybe some of these telescoped words will catch on. And maybe safety admonitions will become shorter and sweeter.

If you're going on vacation this summer you'll probably be spending a lot of time driving. Here are some acronymical reminders that might help you.

One of the most important rules concerns safety belts, and it's LASH

Reprinted from Family Safety magazine, Summer, 1973

SWAB SHARP

DARK PROMPTS

POOP

CLYDE CHOKE

(Lap And Shoulder Harness). You'll need to mix OATS (Obey All Traffic Signs) with your horsepower.

When you're following another vehicle, LAG (Leave Adequate Gap) and OPTIC (Only Pass if Traffic Is Clear).

POINT (Put On Indicators to Note Turns) for the safety of the driver behind.

A real driving pro will show CLASS (Changing Lane Always Show Signal).

As far as speed is concerned, PACE (Proceed According to Conditions Encountered), and on expressways BRAKE (Be Ready And Know Exit).

GROW (Grant Right Of Way) will help you grow older as a driver. And GLOWS (Get Lights On With Sunset) will help your visibility at twilight.

If you're going to pull off the road for any reason, be sure there's room for cars to PASS (Pick A Safe Spot). This one also works for selecting a camp site if you're a camper.

When you're planning to drive, DRYUP (Drinking Renders You Unfit to Perform). And throughout the whole trip GUARD (Guess the Unexpected And Ready a Defense).

After you reach your destination there are some other meaningful acronyms that will help guide you to a more enjoyable vacation.

You'll be doing your skin a favor if you are aware of STING (Sun Tanning Is Needed Gradually). Don't get all fagged out trying to cram too much fun and games into your holidays—keep POOP (Put Off Overdoing Play) in mind.

Where swimming is concerned a couple of acronyms offer good advice for kids: SWAB (Swim With A Buddy) and SWISH (Shallow Water Is Safe Haven).

If your boat overturns, you'll be better off if you GULP (Get and Use Life Preservers).

Poison ivy can be troublesome either on vacation or around home. Your lot can be a scratchy one if you don't learn to recognize that poison plant and stay away from it. Good tip—BAD LOT (Beware And Dodge Leaves Of Three).

Vacationers who build fires for cooking or warmth should be sure to SNUFF (Start No Unfortunate Forest Fires).

Observing all the safety rules should give you a good REST (Relaxed and Easy Summer Trip).

Here are some at random safety acronyms that can be helpful at home.

You can protect youngsters from DARK (Doors on Abandoned Refrigerators Kill). And at street crossings PIED PIPER (Peer In Each Direction; Practice It Perfectly at Every Road) can help you keep your children, not get rid of them. Around electric wiring and fixtures, a JERK (Jobs Electrical Require Know-How) avoids a jolt.

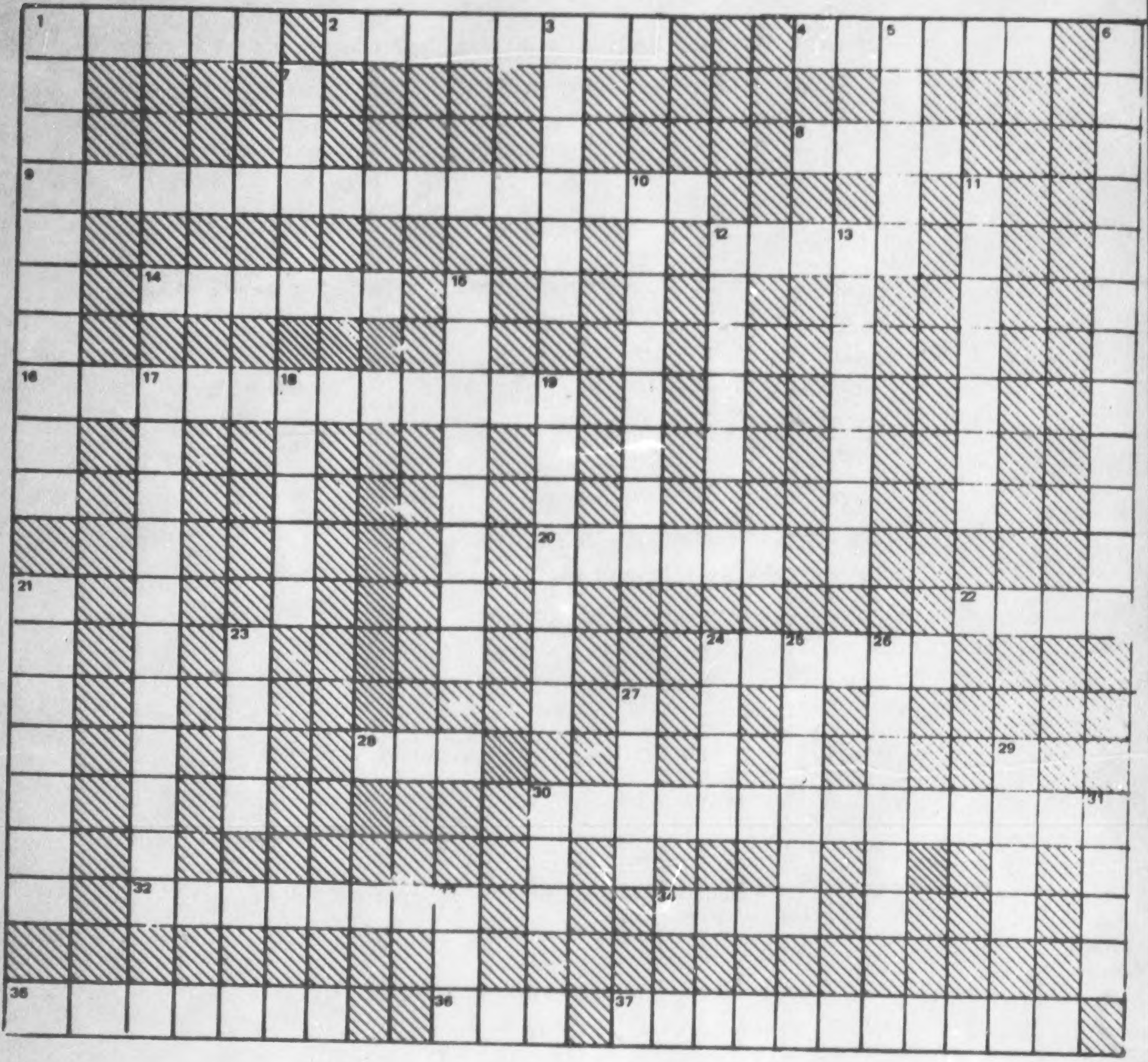
On the job there's nothing silly about being a rah rah employee. Not when RAH means Report All Hazards.

You can play the acronym safety game, too. Make up a safety slogan that will convert to letter shorthand.

But be careful. "Alertness, caution, courtesy in driving ensures no trouble" sounds like a thinking man's slogan, but look at it again. Acronymically it spells accident.

Having safety rules down pat doesn't mean you'll necessarily be able to form any acronyms out of them. But knowing safety from A to Z may keep you from having an accident, and that spells HAPPINESS in any lingo. □

CROSSWORD PUZZLE
AUTOMOBILE PARTS AND ASSOCIATED TERMS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ACROSS

1. valve that controls the supply of air in a gasoline engine.
2. apparatus for igniting the explosive vapor in the cylinders of an internal-combustion engine.
4. the power-producing mechanism of an automobile.
8. spark_____.
9. the distance needed for a car to stop after the driver has applied the brakes.
12. the large steel bracing under the car that supports the body and parts of the car.
14. starter _____ _.
16. the mechanism that transmits power from the engine to the axle.
20. force causing rotation.
22. _________pump.
24. a road around rather than through a city or district.
28. a chart giving road numbers, mileage, etc.
30. bars connecting the pistons and the crankshaft below each cylinder.
34. an audible sound of warning on an automobile.
35. a belt on pulleys which is driven by the crankshaft and which powers the radiator fan and the generator.
36. same as 29 across.
37. a timing device in the form of a rotary switch with a wire leading to each spark plug.

DOWN

1. the device for sending air through or over a liquid fuel so as to produce an explosive mixture.
3. ____________ valve.
5. instrument for measuring gas, temperature, oil, etc.
6. an arrangement of gears in an automobile that allows one of the rear wheels to turn faster than the other while going around a corner.
7. ___________ belt.
10. the chamber in which the piston moves up and down in an engine.
11. a measure of electromotive force.

12. same as 12 across.

13. a device attached to the exhaust to deaden sound.

15. resistance to motion between surfaces that touch.

17. the pedal or lever that controls the flow of gasoline to an automobile engine.

18. a device for converting electrical energy to mechanical energy.

19. the arrangement of gears when they do not transmit motion to the driveshaft and wheels.

21. _________ switch.

23. exhaust _________.

24. hazard to automobile drivers.

25. a movable part fitting snugly inside a cylinder so that, as it moves up and down, it changes the size of the chamber above it.

26. device used to warn oncoming motorists and motorists behind you that you are going to make a turn (right or left).

27. fuel _______.

29. ignition _________.

30. projection on a wheel or shaft that changes a regular circular motion into an irregular circular or a back-and-forth motion.

31. bench type or bucket _______.

33. revolutions per minute (abbr.).

ANSWERS

CROSSWORD PUZZLE
AUTOMOBILE PARTS AND ASSOCIATED TERMS

ACROSS

1. choke
2. ignition
4. engine
8. plug
9. braking distance
12. frame
14. switch
16. transmission
20. torque
22. fuel
24. by-pass
28. map
30. connecting rods
32. radiator
34. horn
35. fanbelt
36. map
37. distributor

DOWN

1. carburetor
3. intake
5. gauge
6. differential
7. fan
10. cylinder
11. voltage
12. frame
13. muffler
15. friction
17. accelerator
18. motor
19. neutral
21. starter
23. pipe
24. bike
25. piston
26. signal
27. line or tank
29 coil
30. cam
31. seat
33. rpm

WORD FIND PRE-DRIVER'S ED.

L	A	W	S	S	P	Q	A	C	C	E	L	E	R	A	T	O	R	Z	W	Y	I	T	L	M	O	L
O	T	L	M	U	Z	Y	S	P	I	H	L	M	R	A	O	L	T	W	Q	B	D	E	I	G	H	A
Z	I	T	Q	W	P	A	B	D	F	G	E	C	H	I	E	J	M	N	O	L	P	S	C	R	T	R
X	[illegible]	N	C	A	B	Z	S	T	P	S	R	W	Y	Z	A	C	B	D	F	G	E	M	E	N	P	E
O	[illegible]	[illegible]	S	Z	Y	X	L	E	M	P	O	N	E	L	W	Y	N	Z	X	O	Q	R	N	S	U	T
V	S	R	X	P	Z	B	Y	Q	A	L	E	R	T	A	L	O	M	A	R	S	G	A	S	W	T	U
V	P	A	Y	I	E	H	W	F	G	T	Y	L	E	T	U	X	W	Z	R	B	A	C	E	B	C	E
X	B	A	D	H	J	C	K	E	D	N	B	M	S	L	H	X	W	C	V	U	T	G	U	F	E	N
Y	C	B	T	C	B	U	T	O	X	Z	L	E	T	K	A	P	A	R	K	Z	S	Y	C	A	B	W
Q	C	D	E	R	T	V	W	I	Y	I	Q	P	L	S	F	B	O	O	E	N	D	N	D	G	F	E
P	Q	D	G	Z	O	S	C	T	O	M	Q	Z	R	T	R	A	N	S	M	I	S	S	I	O	N	X
A	A	A	F	R	S	L	D	Q	S	N	A	C	D	B	S	G	F	S	J	G	H	I	F	Z	I	Y
T	W	S	H	A	C	B	M	J	E	O	S	Y	Q	E	W	P	O	W	N	M	M	G	L	H	K	J
S	Q	H	I	B	D	F	H	E	L	N	G	H	F	T	I	J	Y	I	E	L	D	N	C	C	B	D
O	W	B	J	G	E	I	R	K	N	P	P	X	K	A	K	Q	E	N	Q	W	R	A	V	T	S	T
R	M	O	A	Z	A	O	A	N	U	V	L	L	M	T	N	N	M	D	O	Q	R	L	S	I	T	U
Y	W	A	B	C	P	P	D	M	Z	D	E	E	P	S	P	G	P	S	O	V	W	S	V	W	U	P
W	X	R	C	D	A	R	I	L	T	V	J	Z	Z	R	X	Y	Y	X	B	R	A	K	E	S	W	E
T	W	D	D	B	S	S	A	U	K	S	W	R	W	E	X	H	Y	X	A	Y	A	Z	Z	B	B	D
P	L	W	G	F	S	T	T	M	R	Q	S	T	C	T	J	I	F	I	C	I	J	G	M	N	M	E
C	S	T	E	G	E	R	O	Y	A	Y	F	X	E	N	H	I	G	K	L	L	H	K	O	O	N	S
O	W	E	F	E	N	S	R	A	V	I	I	D	E	I	N	T	E	R	S	E	C	T	I	O	N	T
N	S	A	H	I	G	U	D	B	C	Z	N	U	P	D	P	A	S	R	T	T	Q	R	S	T	Q	R
T	B	A	J	J	E	T	W	Y	X	W	D	T	B	A	E	G	H	U	W	G	E	L	U	H	M	I
R	C	C	I	H	R	V	A	X	Y	B	U	D	E	I	X	W	X	I	I	X	N	E	J	N	G	A
O	B	D	L	K	M	U	L	V	C	Z	F	E	K	N	L	G	A	U	G	E	E	O	R	P	L	N
L	E	G	M	K	N	W	A	X	Y	C	K	V	H	M	A	P	F	L	J	V	H	O	P	I	Q	S
S	Q	W	P	O	O	V	D	C	E	W	C	K	G	M	P	N	R	W	P	O	R	W	G	R	N	T
Q	A	B	N	L	R	X	E	L	U	J	K	Y	J	V	E	Q	C	Q	R	Q	S	I	O	S	T	G
A	D	C	P	Q	Q	W	P	O	U	W	O	W	V	U	Y	X	V	E	X	O	V	Y	U	Z	Z	W

PREDRIVER'S EDUCATION - Word-Find Definitions

1. laws--rules that govern driving
2. seat belts--safety devices
3. control--driver should always have this
4. brakes--stopping device
5. transmission--mechanism that makes the rear wheels pull
6. pedal--clutch, brake, or accelerator
7. interstate--highway system provided for by the Federal Aid Highway Act
8. alert--proper attitude of driver
9. speed--acceleration beyond limitations of law
10. license--must be 16 yeras old to obtain one
11. patrolmen--men who protect and control our highways
12. gauge--measuring device
13. tag--identifies a car
14. insurance--necessary before obtaining a tag
15. signals--safety measure given before turning
16. dashboard--where the controls are located
17. passenger--rider other than the driver
18. accelerator--pedal used to control gas feed
19. maintenance--proper upkeep of car
20. inspection--given once a year by authorized service station
21. switch--motor used to turn over engine
22. radiator--cooling system of engine
23. oil--lubricates car
24. gas--fuel that makes car run
25. test--written, visual, road
26. crosswinds--sudden gusts across highway
27. pedestrian--walker
28. steering--guiding car
29. yield--give right-of-way
30. intersection--where two or more roads meet

ANSWER SHEET

WORD FIND PRE-DRIVER'S ED.

L	A	W	S	S	P	Q	A	C	C	E	L	E	R	A	T	O	R	Z	W	Y	I	T	L	M	O	L
O	T	L	M	U	Z	Y	S	P	I	H	L	M	R	A	O	L	T	W	Q	B	D	E	I	G	H	A
Z	I	T	Q	W	P	A	B	D	F	G	E	C	H	I	E	J	M	N	O	L	P	S	C	R	T	R
X	Y	N	C	A	B	Z	S	T	P	S	R	W	Y	Z	A	C	B	D	F	G	E	M	E	N	P	E
O	R	W	S	Z	Y	X	L	E	M	P	O	N	E	L	W	Y	N	Z	X	O	Q	R	N	S	U	T
V	S	R	X	P	Z	B	Y	Q	A	L	E	R	T	A	L	O	M	A	R	S	G	A	S	W	T	U
V	P	A	Y	I	E	H	W	F	G	T	Y	L	E	T	U	X	W	Z	R	B	A	C	E	B	C	E
X	B	A	D	H	J	C	K	E	D	N	B	M	S	L	H	X	W	C	V	U	T	G	U	F	E	N
Y	C	B	T	C	B	U	T	O	X	Z	L	E	T	K	A	P	A	R	K	Z	S	Y	C	A	B	W
Q	C	D	E	R	T	V	W	I	Y	I	Q	P	L	S	F	B	O	O	E	N	D	N	D	G	F	E
P	Q	D	G	Z	O	S	C	T	O	M	Q	Z	R	T	R	A	N	S	M	I	S	S	I	O	N	X
A	A	A	F	R	S	L	D	Q	S	N	A	C	D	B	S	G	F	S	J	G	H	I	F	Z	I	Y
T	W	S	H	A	C	B	M	J	E	O	S	Y	Q	E	W	P	O	W	N	M	M	G	L	H	K	J
S	Q	H	I	B	D	F	H	E	L	N	G	H	F	T	I	J	Y	I	E	L	D	N	C	C	B	D
O	W	B	J	G	E	I	R	K	N	P	R	X	K	A	K	Q	E	N	Q	W	R	A	V	T	S	T
R	M	O	A	Z	A	O	A	N	U	V	L	L	M	T	N	N	M	D	O	Q	R	L	S	I	T	U
Y	W	A	B	C	P	P	D	M	Z	D	E	E	P	S	P	G	P	S	O	V	W	S	V	W	U	P
W	X	R	C	D	A	R	I	L	T	V	J	Z	Z	R	X	Y	Y	X	B	R	A	K	E	S	W	E
T	W	D	D	B	S	S	A	U	K	S	W	R	W	E	X	H	Y	X	A	Y	A	Z	Z	B	B	D
P	L	W	C	F	S	T	T	M	R	Q	S	T	C	T	J	I	F	I	C	I	J	G	M	N	M	E
C	S	T	E	G	E	R	O	Y	A	Y	F	X	E	N	H	I	G	K	L	L	H	K	O	O	N	S
O	W	E	F	E	N	S	R	A	V	I	I	D	E	I	N	T	E	R	S	E	C	T	I	O	N	T
N	S	A	H	I	G	U	D	B	C	Z	N	U	P	D	P	A	S	R	T	T	Q	R	S	T	Q	R
T	B	A	J	J	E	T	W	Y	X	W	D	T	B	A	E	G	H	U	W	G	E	L	U	H	M	I
R	C	C	I	H	R	V	A	X	Y	B	U	D	E	I	X	W	X	I	I	X	N	E	J	N	G	A
O	B	D	L	K	M	U	L	V	C	Z	F	E	K	N	L	G	A	U	G	E	E	O	R	P	L	N
L	E	G	M	K	N	W	A	X	Y	C	K	V	H	M	A	P	F	L	J	V	H	O	P	I	Q	S
S	Q	W	P	O	O	V	D	C	E	W	C	K	G	M	P	N	R	W	P	O	R	W	G	R	N	T
Q	A	B	N	L	R	X	E	L	U	J	K	Y	J	V	E	Q	C	Q	R	Q	S	I	O	S	T	G
A	D	C	P	Q	Q	W	P	O	U	W	O	W	V	U	Y	X	V	E	X	O	V	Y	U	Z	Z	W

RESOURCE LIST

ORGANIZATIONS

Aetna Casualty and Surety Company, Driver Education Services, 151 Farmington Avenue, Hartford, Connecticut 06115.

Allstate Insurance Company, 7770 Frontage Road, Skokie, Illinois 60076.

American Automobile Association, 1712 G Street NW., Washington, D.C. 20006.

American Automobile Association-North Carolina, Carolina Motor Club, Inc., 701-3 South Tryon St., P.O. Box 60, Charlotte, North Carolina 28202.

Bicycle Manufacturer's Association of America, 1101 15th Street NW., Suite 304, Washington, D.C. 20005.

National Bicycle Dealers Association, 29025 Euclid Avenue, Wickliffe, Ohio 44092.

National Education Association, American Association for Health, Physical Education and Recreation, 1201 16th Street NW., Washington, D.C. 20036.

National 4-H Service Committee, Inc., Program Services, 150 North Wacker Drive, Chicago, Illinois 60606.

National Safety Council, 425 North Michigan Avenue, Chicago, Illinois 60611.

North Carolina Department of Motor Vehicles, Traffic Safety Education Division, 1100 New Bern Avenue, Raleigh, North Carolina 27611.

North Carolina Department of Public Instruction, Education Building, Raleigh, North Carolina 27611.

North Carolina Department of Transportation, Bicycle Coordinator, P.O. Box 25201, Raleigh, North Carolina 27611 (for bikeways information).

North Carolina State University, Agricultural Extension Service, Department of Agricultural Information, Box 5037, Raleigh, North Carolina 27607.

Schwinn Bicycle Company, 1856 Kastner Avenue, Chicago, Illinois 60635.

University of North Carolina at Chapel Hill, Highway Safety Research Center, Craige Trailer Park, Chapel Hill, North Carolina 27514.

The Wheelmen, 6239 Anauista, Flint, Michigan 48507.

TRANSPORTATION

FILM

The American Highway. (color, Tv/Yes, 28-1/4 min.) Stresses benefits of safe highway design and instructs drivers in proper use. Public Works Committee, U.S. House of Representatives, 2459 Rayburn Building, Washington, D.C. 20515.

DRIVER'S LICENSE

FILM

Your Permit To Drive. (1969, 16 mm, color, 10 min.) A film that emphasizes the privileges and responsibilities of a driver's license. Available from General Motors Corp., Film Library GM Building, Detroit, Michigan 48202 (pl).

IPDE

FILM

A System For The Road. (color, Tv/No, 12-1/2 min.) Illustrates eye scan technique and two-second following distance in traffic. Available from Allstate Insurance Company, Allstate Plaza F-3, Northbrook, Illinois 60062.

Eyes On The Road. (16 mm, color, 16 min.) Film presents evidence of the importance of good driving vision which enables the driver to make the thousands of swift decisions he is faced with in today's driving situations. Available from Audience Planners, Inc., 208 South LaSalle Street, Chicago, Illinois 60604 (pl).

PAMPHLETS

Vision And The Driver. Safety Education Data Sheet #88. National Safety Council, 425 North Michigan Avenue, Chicago, Illinois Stock No. 429.04-88.

VISION

FILMS

Eyes On The Road. (16 mm, color, 16 min.) Film presents evidence of the importance of good driving vision which enables the driver to make the thousands of swift decisions he is faced with in today's driving situations. Available from Audience Planners, Inc., 208 South LaSalle Street, Chicago, Illinois 60604 (pl).

PAMPHLETS

Vision And The Driver. Safety Education Data Sheet #88. National Safety Council, 425 North Michigan Avenue, Chicago, Illinois, Stock No. 429.04-88.

DRINKING AND DRIVING - DRUGS AND DRIVING

FILMS

Alcohol and Red Flares. (1972, 16 mm, color, 20 min.) Hazards of driving while under the influence of alcohol; what can and is being done to stress the importance of safe driving habits. Available from Sid Davis Productions, 1046 South Robertson Boulevard, Los Angeles, California 90035 (p).

Drinking Drivers. (1969, 16 mm, color, 13 min.) Actual scientific tests prove the danger of drinking before driving at a series of tests at the General Motors Proving Ground. Available from General Motors Corp., Film Library, GM Building, Detroit Michigan 48202 (pl).

Drivin', Drinkin', and Drugs. In a manner psychologically suited to "getting the message across" to today's teenagers, this film presents the hard cold facts relating to both alcohol and drug use. In doing so it seeks to motivate teenagers to make personal decisions to separate the two practices of driving and drinking, and to abstain from the use of drugs altogether. Available from Modern Talking Picture Service, Inc., 2323 New Hyde Park Road, New Hyde Park, New York 11040 (l).

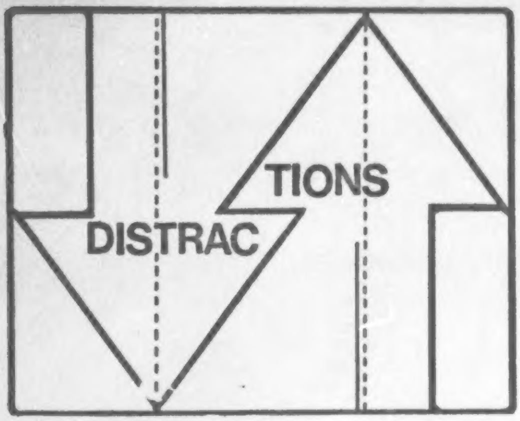
Drivin' and Drugs. (1972, 16 mm, color, 14 min.) A film that investigates "pep pills" and "goof balls" (amphetamines and barbiturates), marijuana, heroin, and LSD and their effect on driving judgment. The film seeks to motivate young people to abstain altogether from the use of drugs and effectively gives the reason why. Available from General Motors Corp., Film Library, GM Building, Detroit, Michigan 48202 (pl).

Drugs, Drinking, and Driving. (1970, 16 mm, color, 18 min.) Physiological and psychological experiments at UCLA demonstrate the effects that alcohol and drugs--even the most "harmless" ones--can have on driving. Available from AIMS Instructional Media Services, Inc., P.O. Box 1010, Hollywood, California 90028.

Go, Sober and Safe. (1971, 16 mm, color, 28-1/2 min.) A factual film on alcohol, its effect on the human body and its effect on the operator of a motor vehicle. Film stresses the precautions a drinking driver should take. Available from Highway Safety Foundation, P.O. Box 1563S, Mansfield, Ohio 44907 (p).

FILMSTRIP

The Junkyard. (1973, 35 mm, color, 25 min.) The problem of drinking, drugs, and the driving task as they relate to one another. Film focuses on alcohol, the barbiturates, the amphetamines, and the hallucinogens as they affect the driver. Available from Professional Arts, Inc., 1752 Parrott Drive, San Mateo, California 94402.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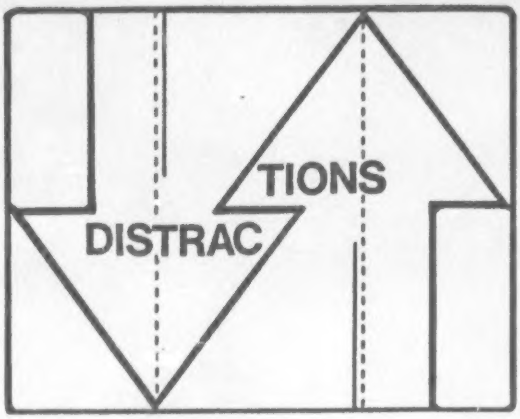
DISTRAC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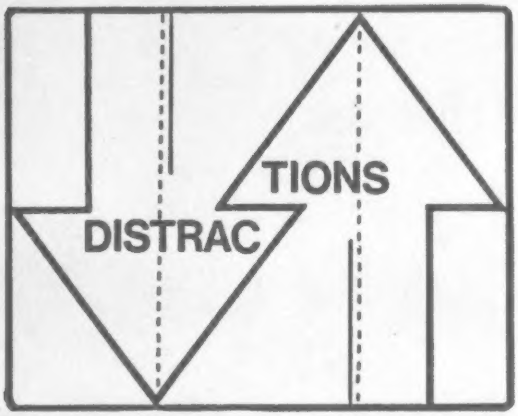
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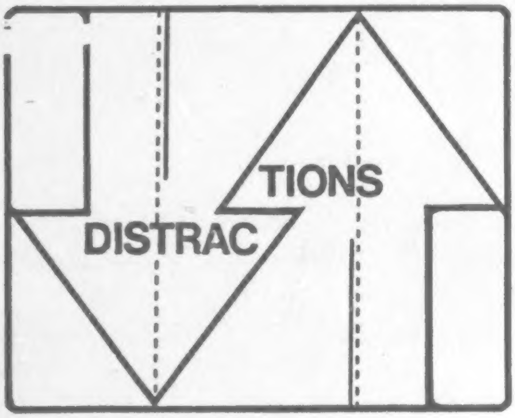
•Level D•

A DRIVING AWARENESS
GAME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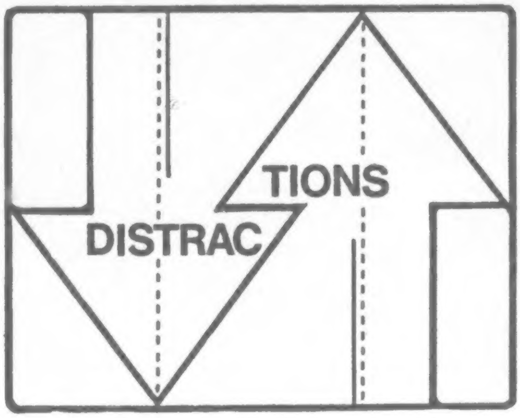
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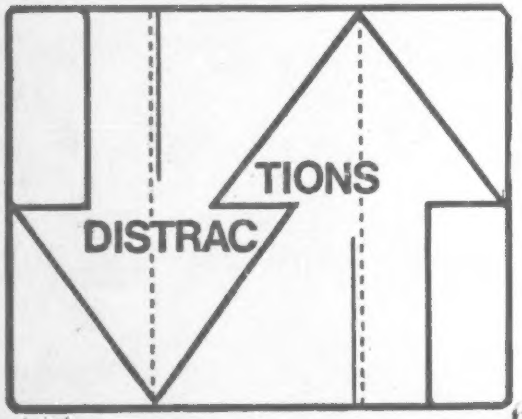
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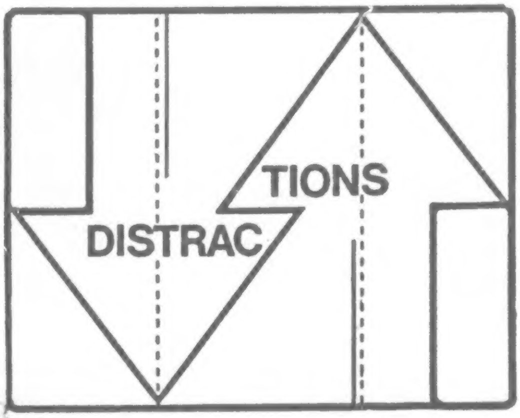
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DISTRACTIONS

INTRODUCTION

An important goal of pre-driver education is to sensitize young persons to the complexities of the traffic environment, and to the importance of quick and rational decision making. A driver must be able to attend to a variety of factors that influence the execution of his driving skills.

GOAL

To provide the student with a simulated driving experience that requires him to 1) be alert to potential hazards and 2) make judgments about the variables of the traffic environment.

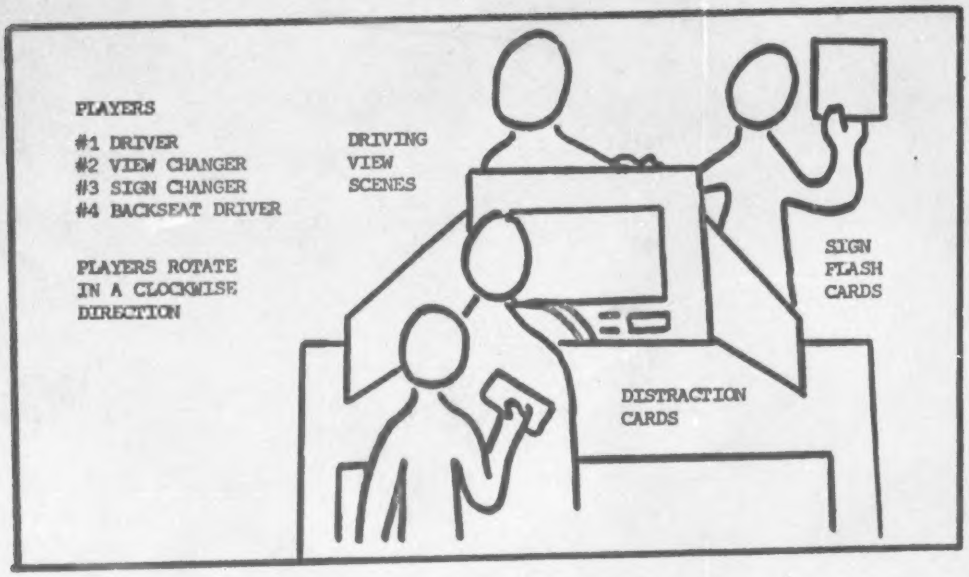
OBJECTIVES

- The student will be able to make a correct decision about the appropriate action to take in a driving situation.
- The student will be able to correctly identify rules of the road, road signs and road conditions that effect his decision.
- The student will be able to make good judgments about action to be taken when confronted with a potential hazard.

TO ASSEMBLE GAME

Use white glue or rubber cement to mount each DRIVING VIEW scene on posterboard. Each DRIVING VIEW scene is numbered so that the corresponding question/answer can be cut apart and glued to the center back of each DRIVING VIEW scene. Direction for assembling the mock-up windshield are included at the end of the packet. Each sheet containing the SIGN FLASH and DISTRACTION cards should be cut along the dotted line.

The teacher or students may wish to add color to the DRIVING VIEW scenes, the SIGN FLASH and DISTRACTION cards by using magic marker, colored pencil or crayon.


PLAYERS
#1 DRIVER
#2 VIEW CHANGER
#3 SIGN CHANGER
#4 BACKSEAT DRIVER
PLAYERS ROTATE IN A CLOCKWISE DIRECTION
DRIVING VIEW SCENES
SIGN FLASH CARDS
DISTRACTION CARDS

GAME STRATEGY:

Each player must choose one of the four roles (driver, view changer, sign changer or backseat driver) and assume the correct position. The game begins as player #2 drops a DRIVING VIEW scene into the simulated mock-up windshield, and reads aloud the situation (found on the back of the DRIVING VIEW scene card). Player #3 must hold up a sign that is appropriate to the situation. Player #4, the back-seat driver must choose a DISTRACTION card that relates to the driving situation, and attempt to distract or stump the driver by calling out the warning on the printed card.

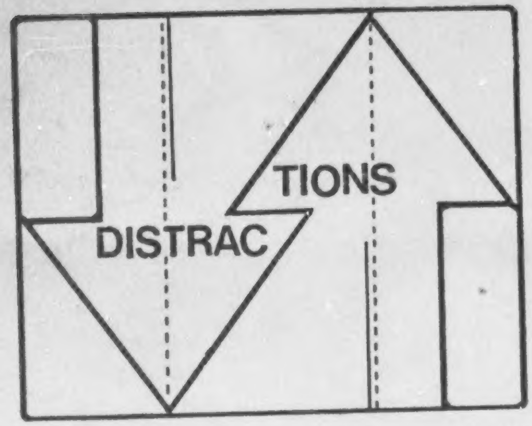
The driver must wait until all three variables (driving situation, sign, distraction) have been presented to the driver and he must then immediately:

1) describe the action that he should take in the driving situation (presented by player #2)
2) identify the meaning of the sign
3) identify the advise of the backseat driver as good or poor judgment

A correct response to each variable is worth 1 point (the total number of points possible in a given turn is 3). Player one takes 3 turns in the driver's position. All players then rotate in a clockwise direction. The cycle is complete when all four players have returned to their original positions.

WIN CRITERION:

The game consists of as many cycles as time and enthusiasm permit. The winner is the player with the most points at the end of the last completed cycle.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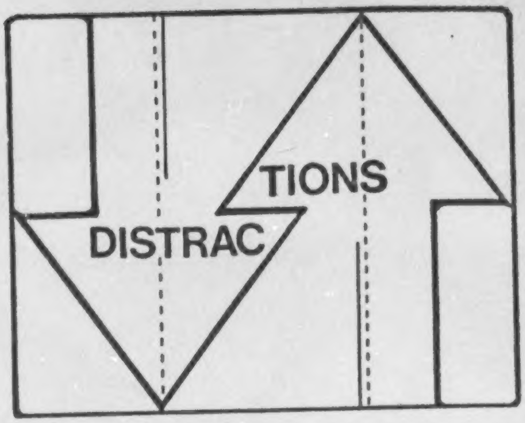
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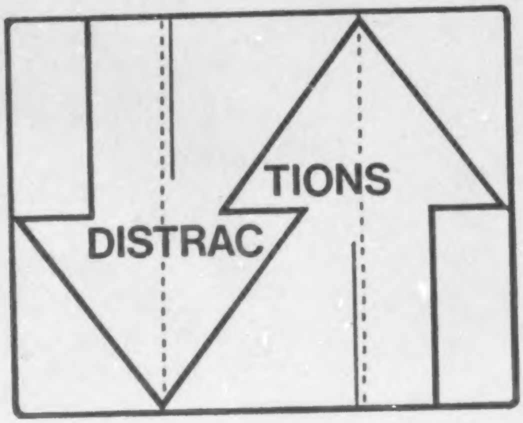
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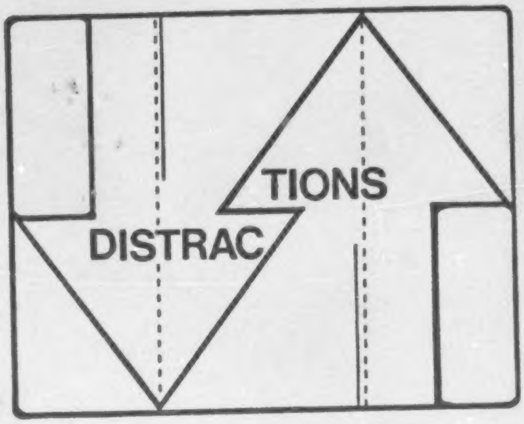
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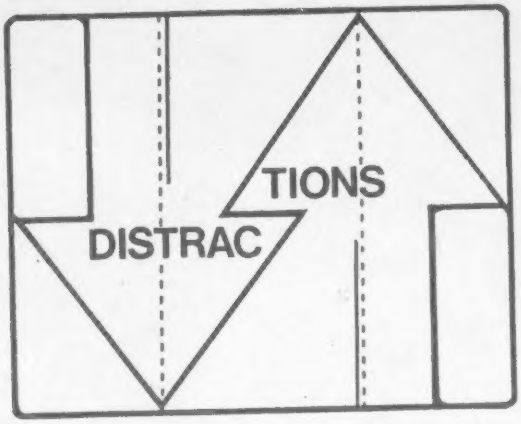
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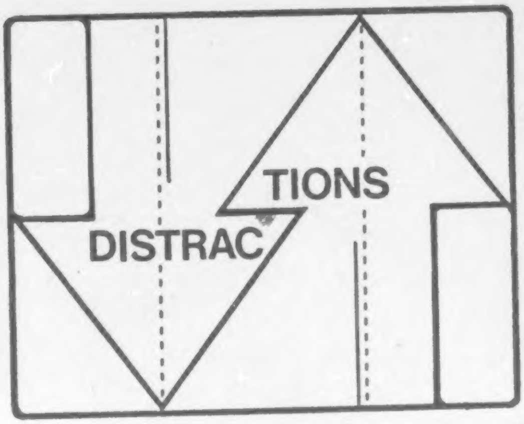
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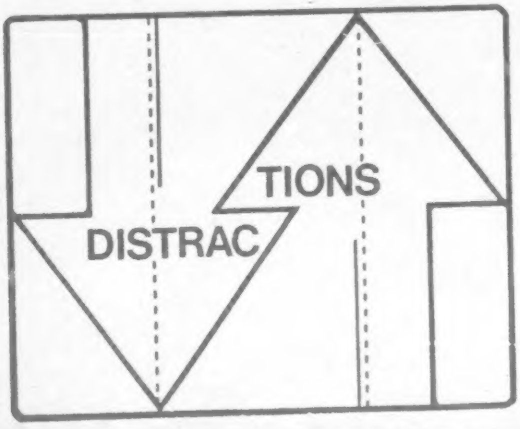
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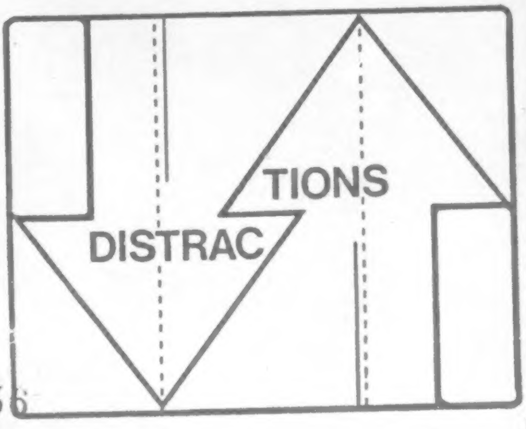

TIONS
DISTRAC

HEY, LOOK BACK!
Did you see that field of daffodils?

POOR JUDGMENT

STOP!!!
A child is chasing his ball into the road.

GOOD JUDGMENT

HEY! SLOW DOWN.
Watch out for that pedestrian walking on the shoulder.

GOOD JUDGMENT

HEY!
Now you've flooded your engine and you've stalled out. Hold the gas pedal all the way down.

GOOD JUDGMENT

STOP! YOU DODO!
You've missed your turn.

POOR JUDGMENT
Go to the next intersection.

WATCH OUT--for that icy patch!
Put the brakes on hard.

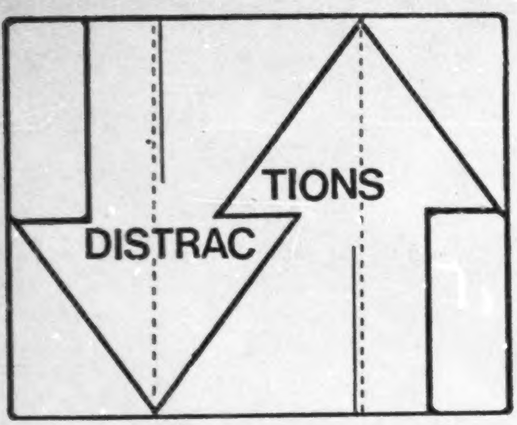
POOR JUDGMENT
Pump the brake lightly.

WATCH OUT!
PULL TO THE RIGHT FAST!
There's a huge hole in the road.

POOR JUDGMENT
You should slow down.

WATCH OUT! SLOW DOWN!
That chicken truck must have dropped a crate.

GOOD JUDGMENT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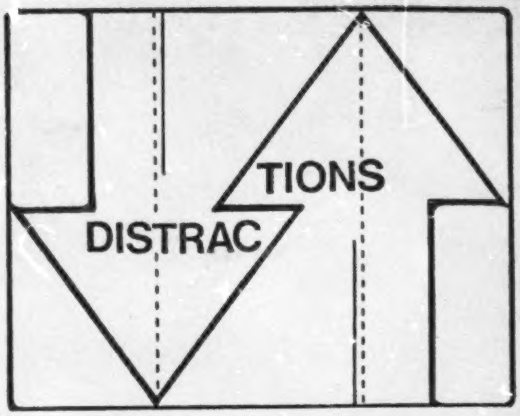
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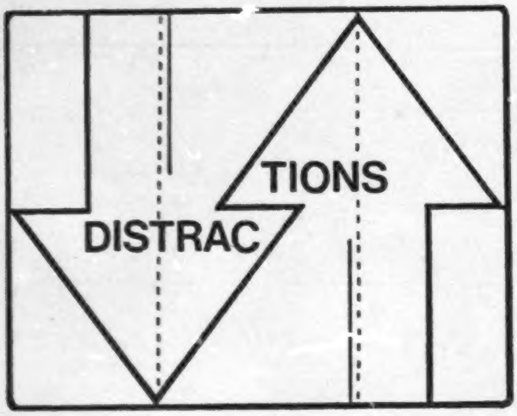
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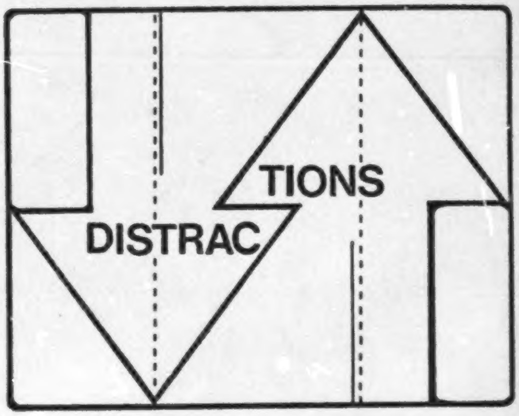
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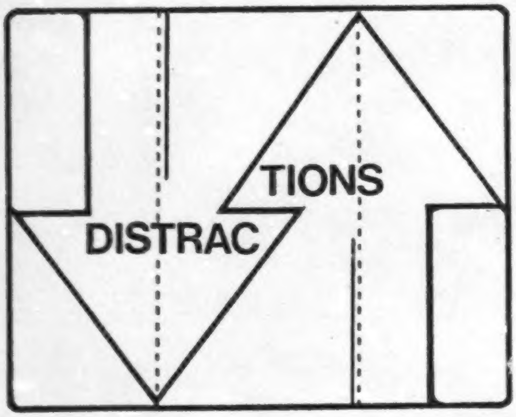
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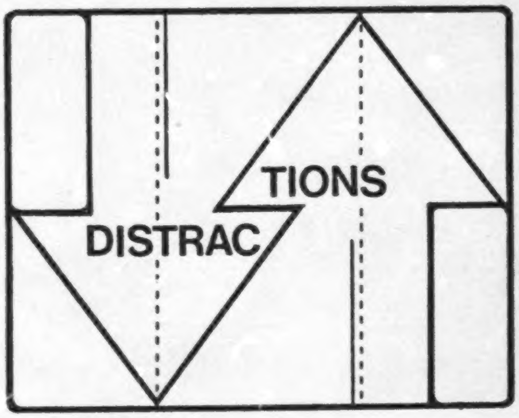
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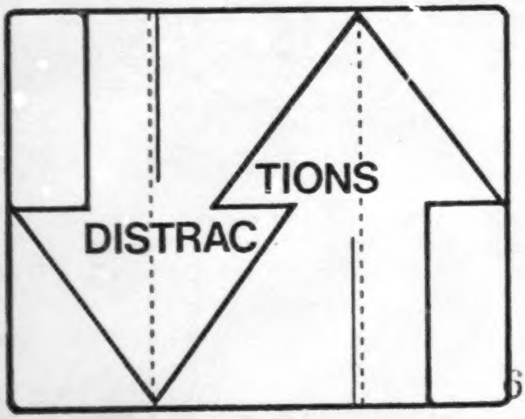
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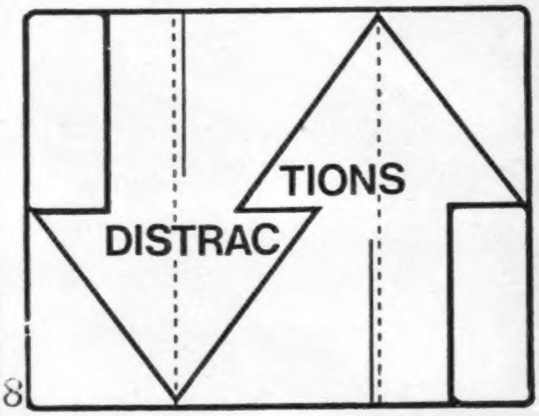

TIONS
DISTRAC

WOW! LOOK OUT FOR ALL THAT FOG UP AHEAD!
Put on your high beam lights.

POOR JUDGMENT
Use low beam lights in fog.

SLOW DOWN!
You're going to hit that dog!

GOOD JUDGMENT

SPEED UP!
You're driving too slow--the driver behind us is speeding and you're holding him up, he looks mad.

POOR JUDGMENT
Do not exceed the speed limit or safe driving speed.

BLOW YOUR HORN!
I know someone in that car.

POOR JUDGMENT

WOW! IT'S STARTING TO SNOW!
Put on your low beam headlights.

GOOD JUDGMENT

WOW! IT SOUNDS LIKE YOU HAD A BLOW OUT!
Slam on your brakes!

POOR JUDGMENT
Grip the steering wheel firmly to keep the car from swerving.

PULL OVER TO THE RIGHT near the shoulder of the road. The car behind us is trying to pass. Keep up a steady speed.

GOOD JUDGMENT
Do not speed up.

SPEED UP!
Get away from that man on horseback.

POOR JUDGMENT

HEY! YOU RAN OFF THE EDGE OF
THE PAVEMENT!
Slam on your brakes!

POOR JUDGMENT
Take your foot off the gas pedal
gradually.

STOP!!!
Don't hit that bottle on
the road ahead.

POOR JUDGMENT

BLOW YOUR HORN.
That car ahead is driving
too slow.

POOR JUDGMENT

WATCH OUT.
There is a car on your left.
Move over to the shoulder.

POOR JUDGMENT

SLOW DOWN.
Look out! A car is pulling into
the road ahead of us!

GOOD JUDGMENT

SPEED UP.
Let's follow that fire
engine.

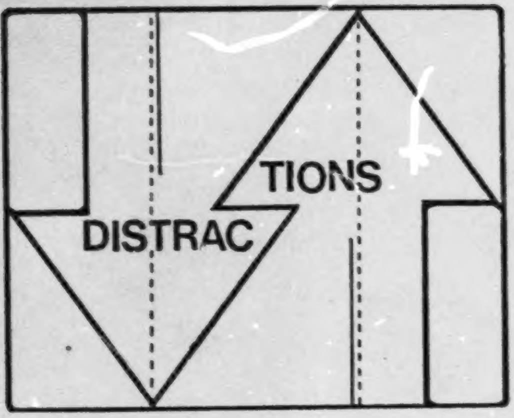
POOR JUDGMENT

SLOW DOWN.
There's a wreck ahead.

GOOD JUDGMENT

SPEED UP.
There's a curve you need to
get around fast.

POOR JUDGMENT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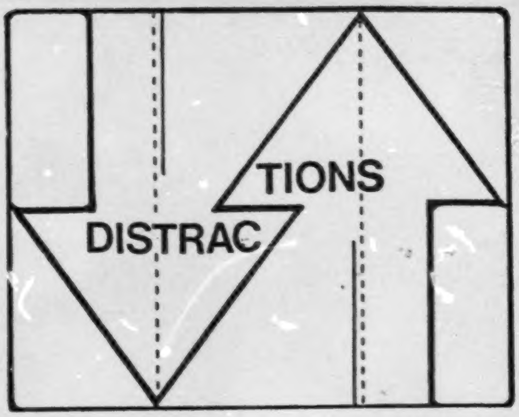
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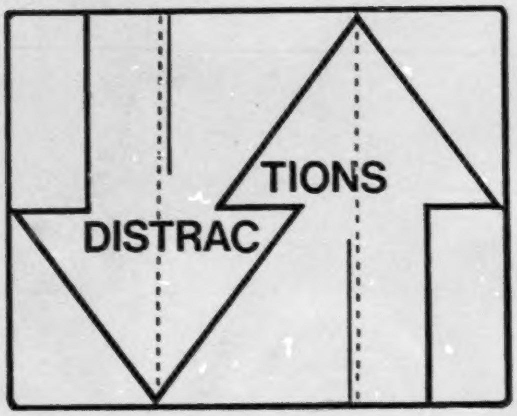
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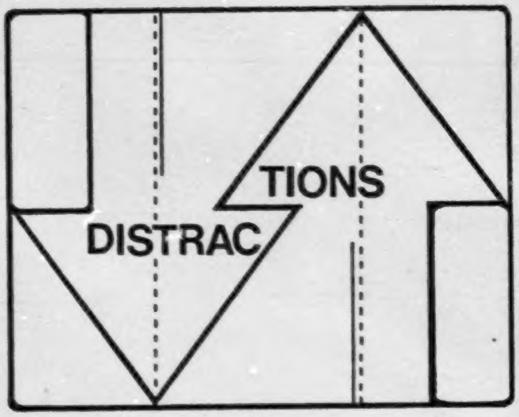
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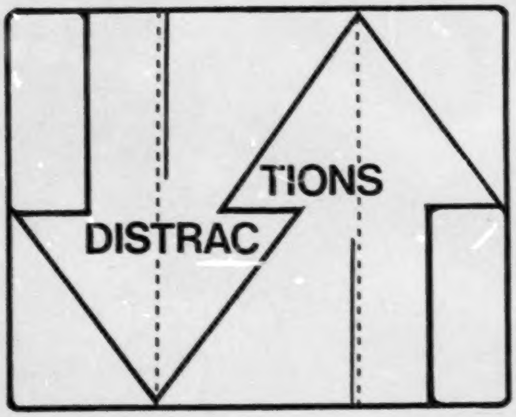
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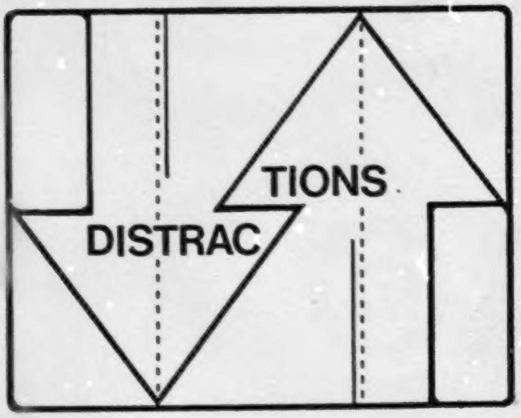
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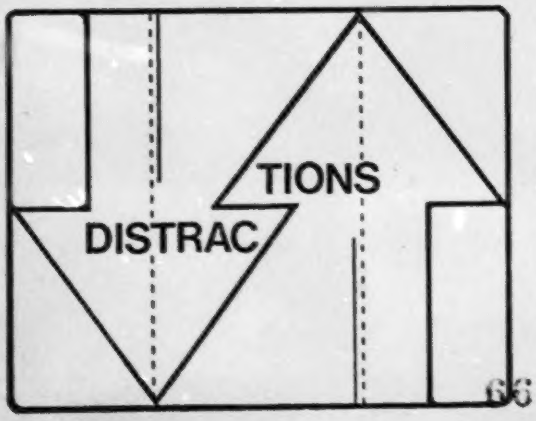
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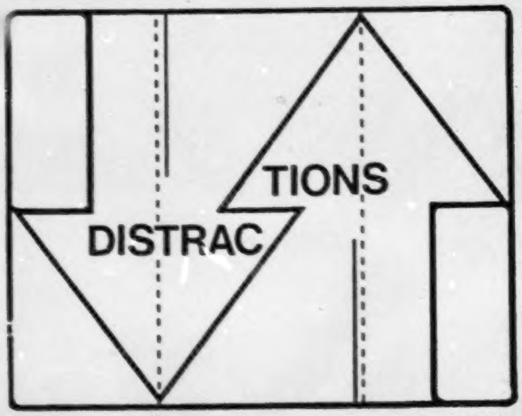
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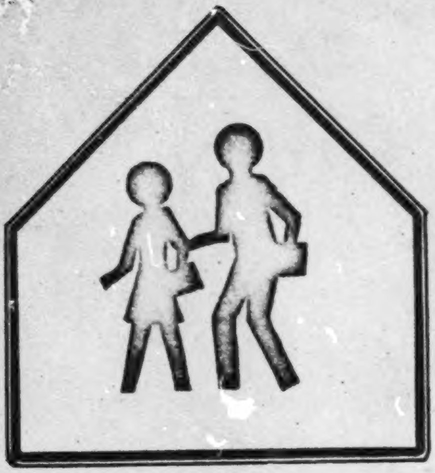

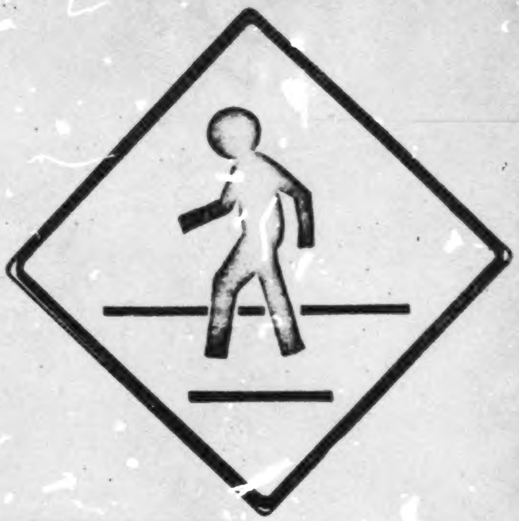

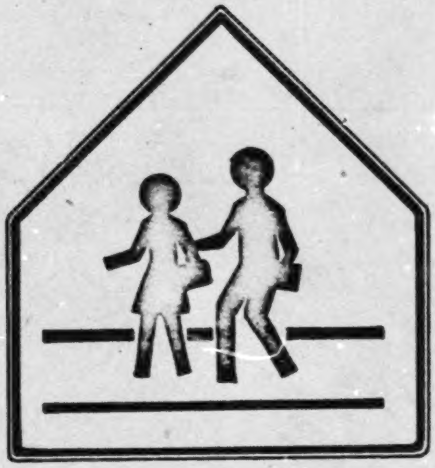

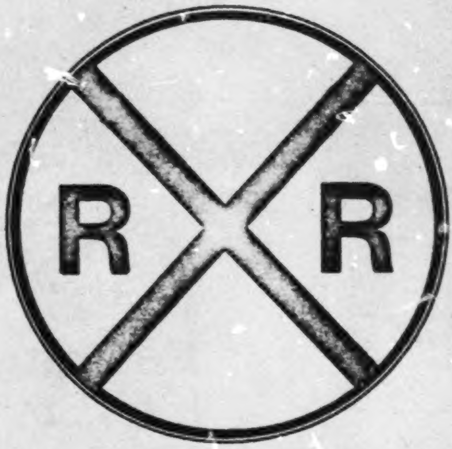
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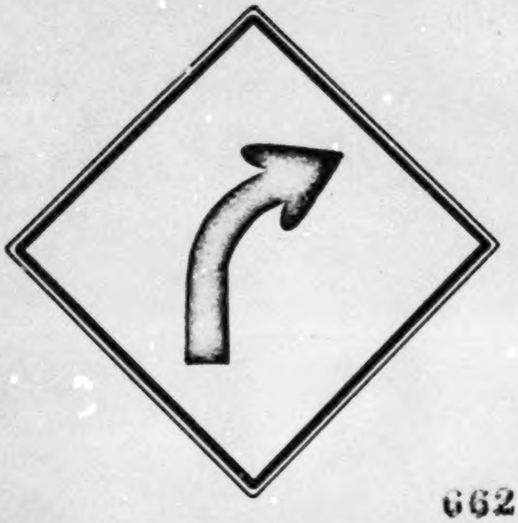
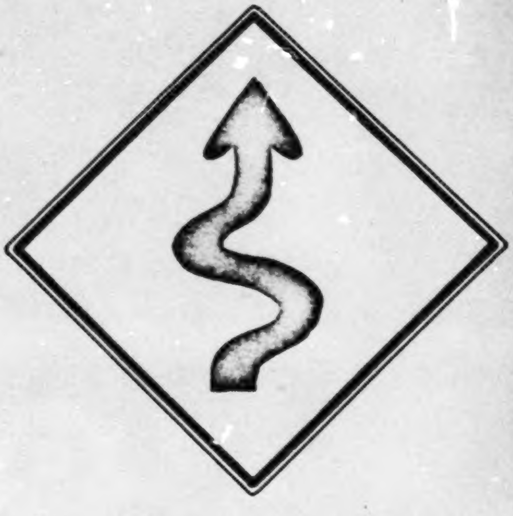




PEDESTRIAN
CROSSING

Warning

SCHOOL

Warning

RAILROAD
CROSSING
AHEAD

Warning

SCHOOL
CROSSING

Warning

WINDING
ROAD

Warning

CURVE
RIGHT

Warning

DO NOT
ENTER

Regulatory

STOP

Regulatory

NO
U TURN

Regulatory

NO
LEFT
TURN

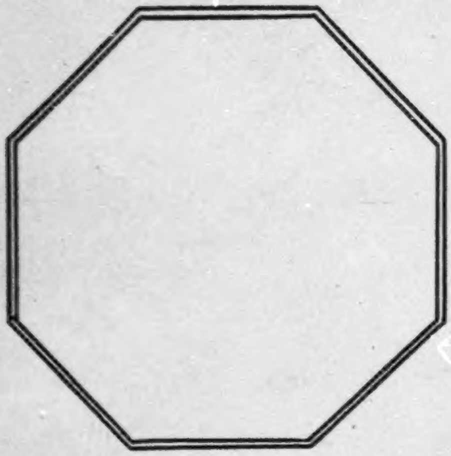
Regulatory

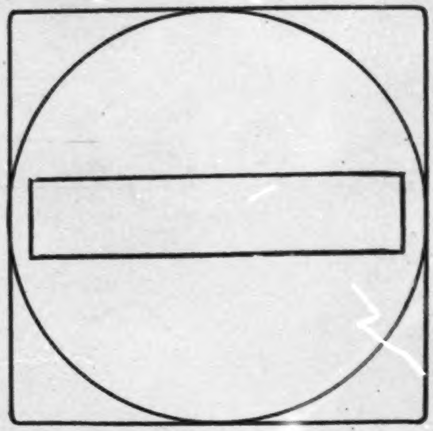
NO
BICYCLES

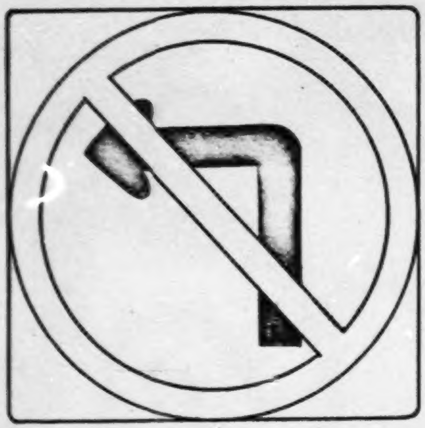
Regulatory

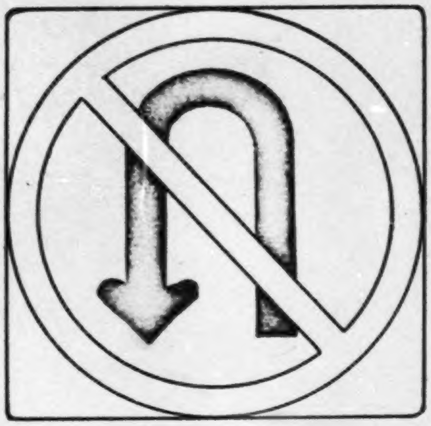
YIELD

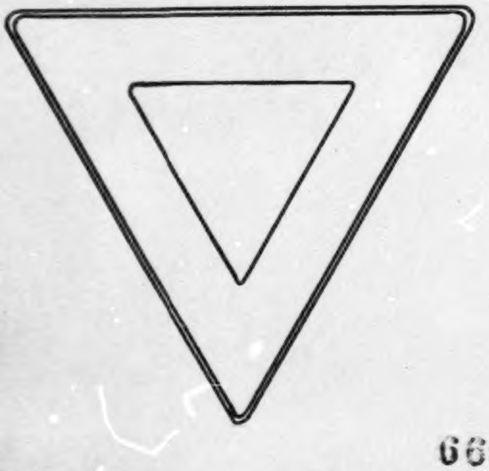
Regulatory

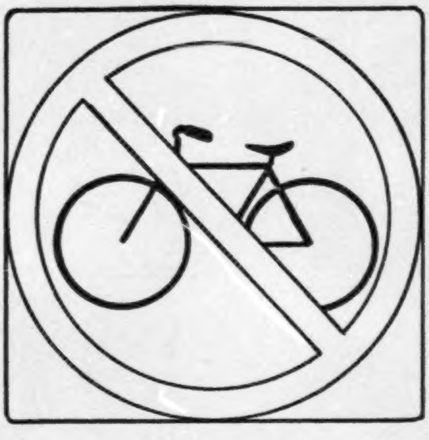


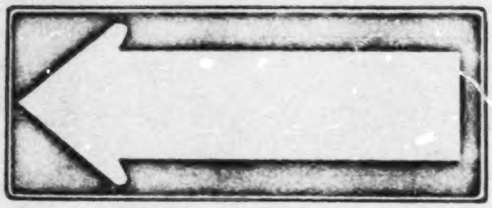


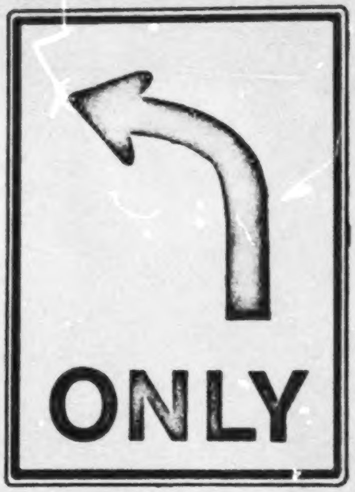








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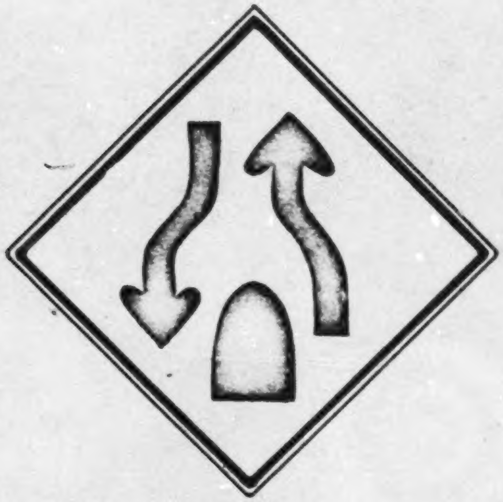
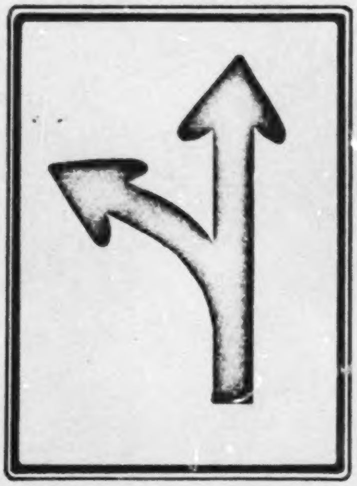
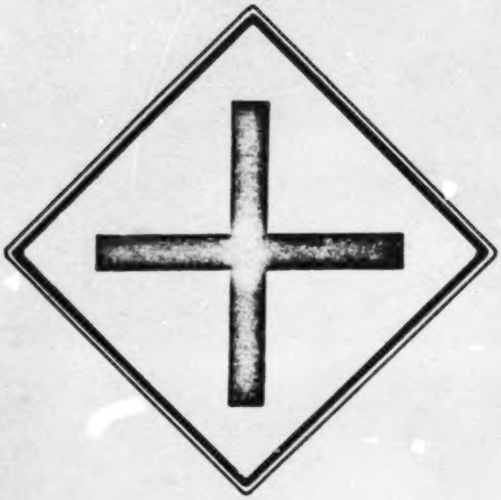
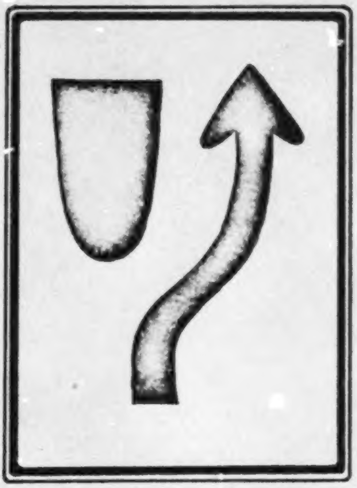








LEFT
TURN
ONLY

Regulatory

ONE
WAY

Regulatory

THROUGH
AND
LEFT

Regulatory

DIVIDED
HIGHWAY
ENDS

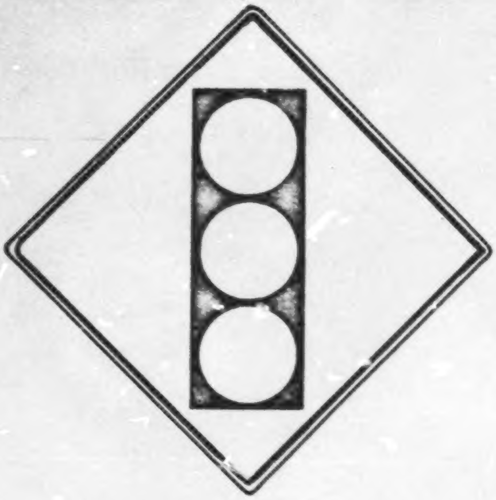
Warning

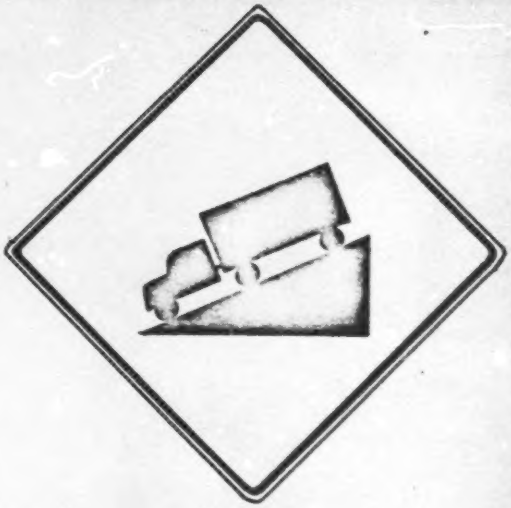
KEEP
RIGHT

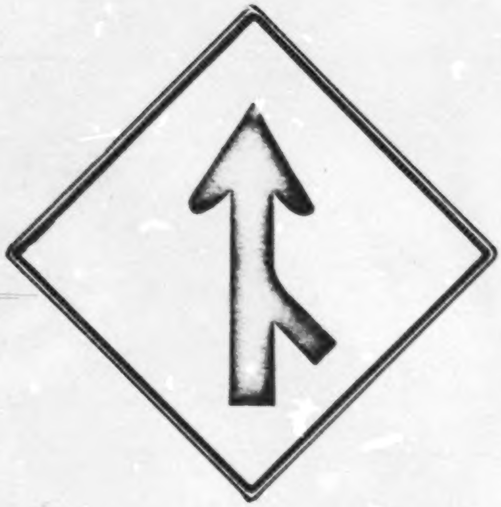
Regulatory

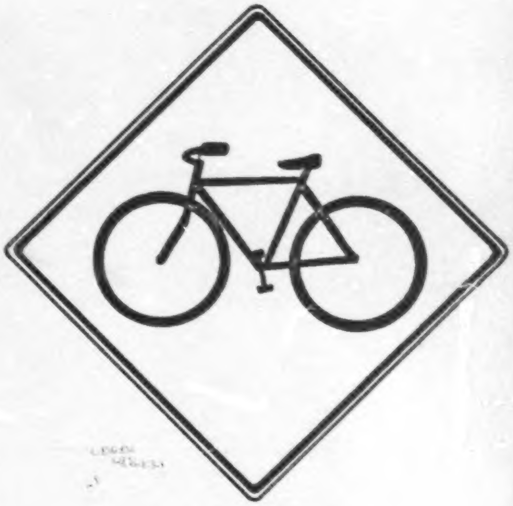
CROSS
ROAD
AHEAD

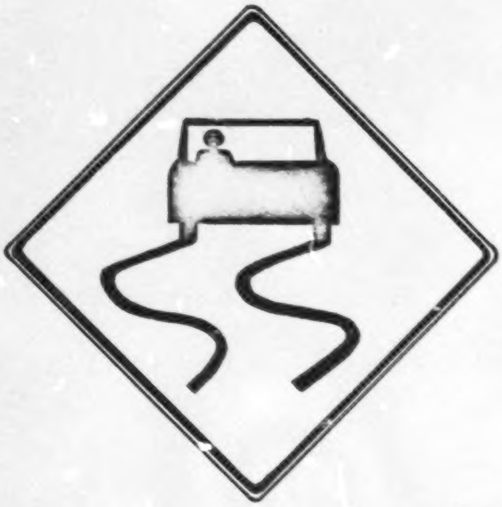
Warning

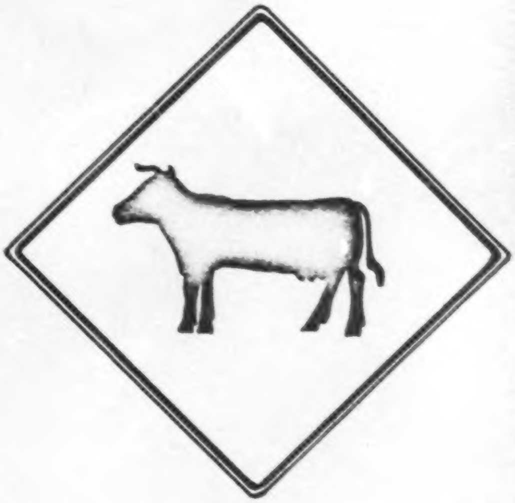












HILL

Warning

SIGNAL
AHEAD

Warning

BIKE
CROSSING

Warning

MERGING
TRAFFIC

Warning

CATTLE
CROSSING

Warning

SLIPPERY
WHEN
WET

Warning

DRIVING VIEW SCENE   QUESTION / ANSWER

(To be cut apart and glued to the center back of each DRIVING VIEW scene.)

---

1. You are parked behind this car on the street downtown. What must you do before you pull out into the traffic?

Answer: You must look to make sure the lane is clear of traffic and you must give a left turn signal.

---

2. You are driving at night and following another car. Which lights should you use?

Answer: Low beam lights.

---

3. You want to go straight ahead. Who has the right of way?

Answer: The truck on the right has the right of way.

---

4. You want to pass the truck on the right. Can you?

Answer: Yes, you can pass on the right because this is an expressway.

---

5. You are driving at night and see a cyclist. Which lights should you use?

Answer: You should use your regular beam lights and slow down.

---

6. Can you pass this truck? Why or why not?

Answer: You should not pass this truck because you are on a curve.

---

7. You want to pass this truck. Is it safe?

Answer: No, you must wait until after the railroad crossing to pass.

---

8. What should you do if you see this?

Answer: Slow down and be ready to stop.

---

9. Can you pass this car? What should you do?

Answer: Yes , even though there is a NO PASS sign, the policeman is telling you to pass the car.

10. You are driving down a hill; what should you do to slow down?

Answer: You should shift into a lower gear to slow down.

11. What does the flashing yellow traffic signal at this intersection mean?

Answer: Slow down and proceed with caution.

12. You see a school bus coming towards you stop to let out passengers. What must you do?

Answer: You must stop until the bus starts again and the bus stop sign has been removed.

13. Can you pass this truck? What should you do?

Answer: Drop back until the truck no longer blocks your vision and pass when there is no traffic in the other lane.

14. You are in a business district but there is no speed limit sign. How fast can you drive?

Answer: The maximum is 20 mph (33 kph) for a business district.

15. Can you pass this car? Why or why not?

Answer: No, you must wait until the dotted yellow line is on your side.

16. The driver of the on-coming car has his brights on. What should you do?

Answer: Watch the road ahead to avoid looking at the lights of the other car, and blink your headlight beams up and down one time.

---

17. You want to turn left. What should you do?

Answer: Wait until the oncoming car passes through the intersection.

---

18. You want to make a left turn, but you're in the right lane. What should you do?

Answer: Go on to the next intersection and turn there.

---

19. The driver in the car ahead of you is using his hand signal. What is he going to do?

Answer: This driver is using his hand to signal a right turn.

---

20. When you see this traffic signal what must you do?

Answer: Stop and don't start again until you see that you can safely enter the intersection.

---

21. You want to turn into this driveway; it is late afternoon and the sun is bright and glaring. What should you do?

Answer: Use electric and hand signals together.

---

22. You are driving in a residential district. What is the speed limit?

Answer: The speed limit is 35 mph (57 kph).

---

23. You want to pass this car. What must you do?

Answer: Signal your intention to the driver of the car by blowing your horn and giving a left turn signal.

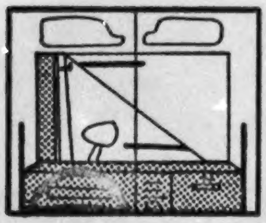
---

24. You want to turn left. Do you turn into lane #1 or lane #2 ?

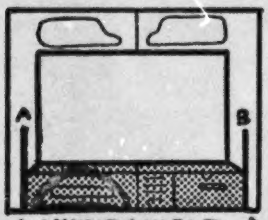
Answer: Turn into lane #2.

MOCK-UP WINDSHIELD ASSEMBLY

YOU WILL NEED ~ 1 SHEET OF POSTERBOARD
WHITE GLUE (e.g. ELMERS)
RUBBER CEMENT OR DRY MOUNT PRESS

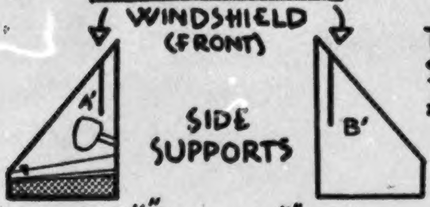


MOUNT THE TWO HALVES OF THE MOCK-UP WINDSHIELD ON POSTERBOARD. WHERE THE TWO SIDES MEET, TAKE CARE TO MAKE ALL LINES JOIN AND EXTEND EVENLY.



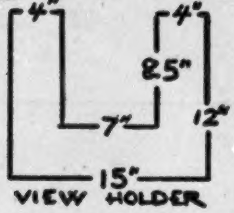
WINDSHIELD (FRONT)

CUT ON DASHED LINES TO MAKE WINDSHIELD OPENING AND SLOTS A, A', B, AND B'. YOU NOW HAVE WINDSHIELD AND SIDE SUPPORTS.



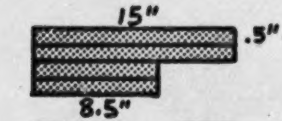
SIDE SUPPORTS

TO ADD SIDE SUPPORTS, SLIDE SLOT A INTO SLOT A' AND SLOT B INTO SLOT B'.

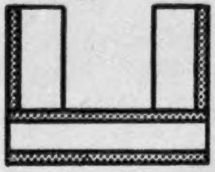


VIEW HOLDER

ON LEFTOVER POSTERBOARD, DRAW VIEW HOLDER TO DIMENSIONS SHOWN AND CUT IT OUT.

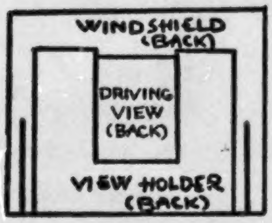


CUT FOUR ½" STRIPS.



VIEW HOLDER (FRONT)

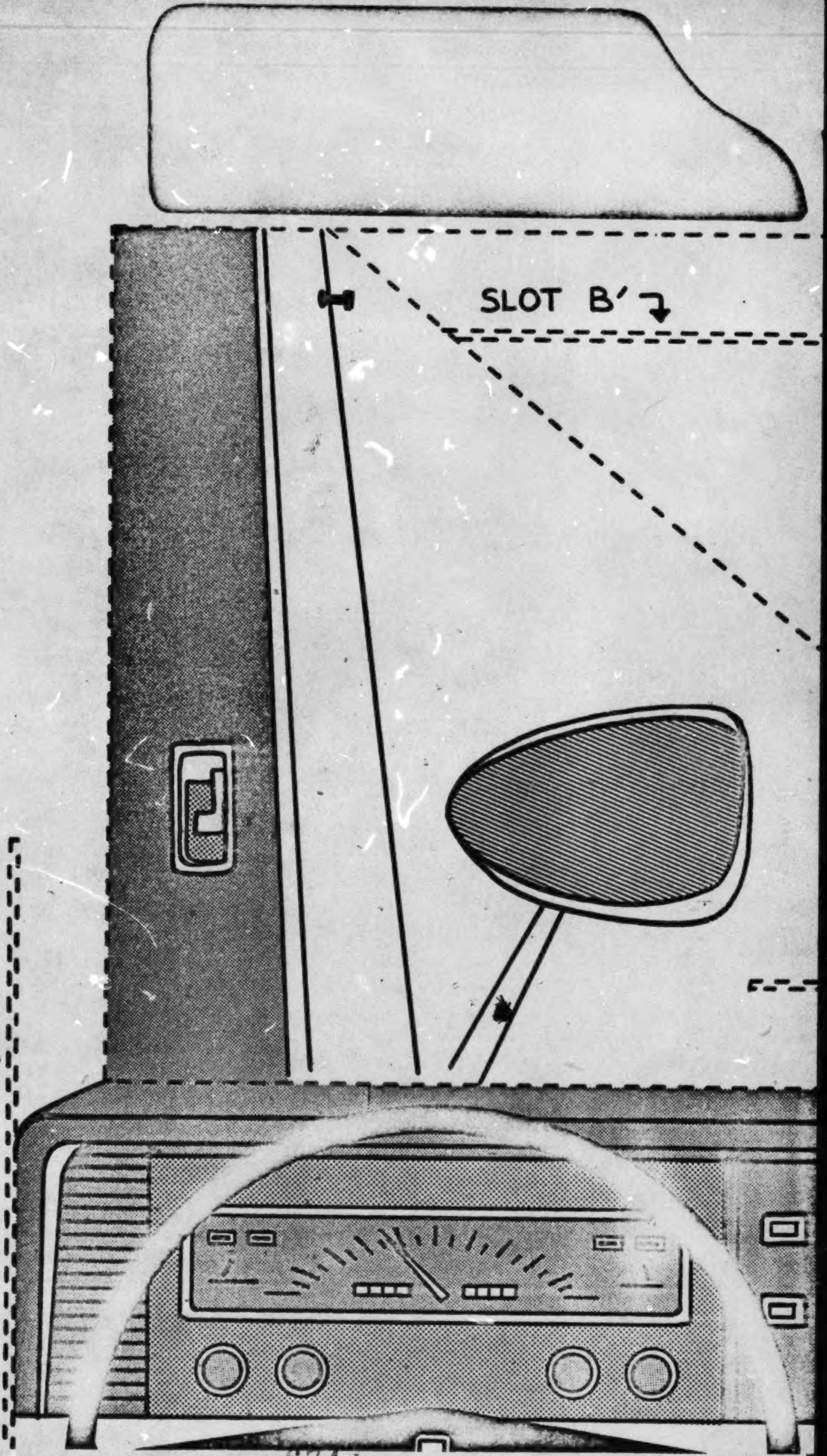
GLUE STRIPS TO VIEW HOLDER AS SHOWN. USE WHITE GLUE. WAIT UNTIL DRY TO CONTINUE.

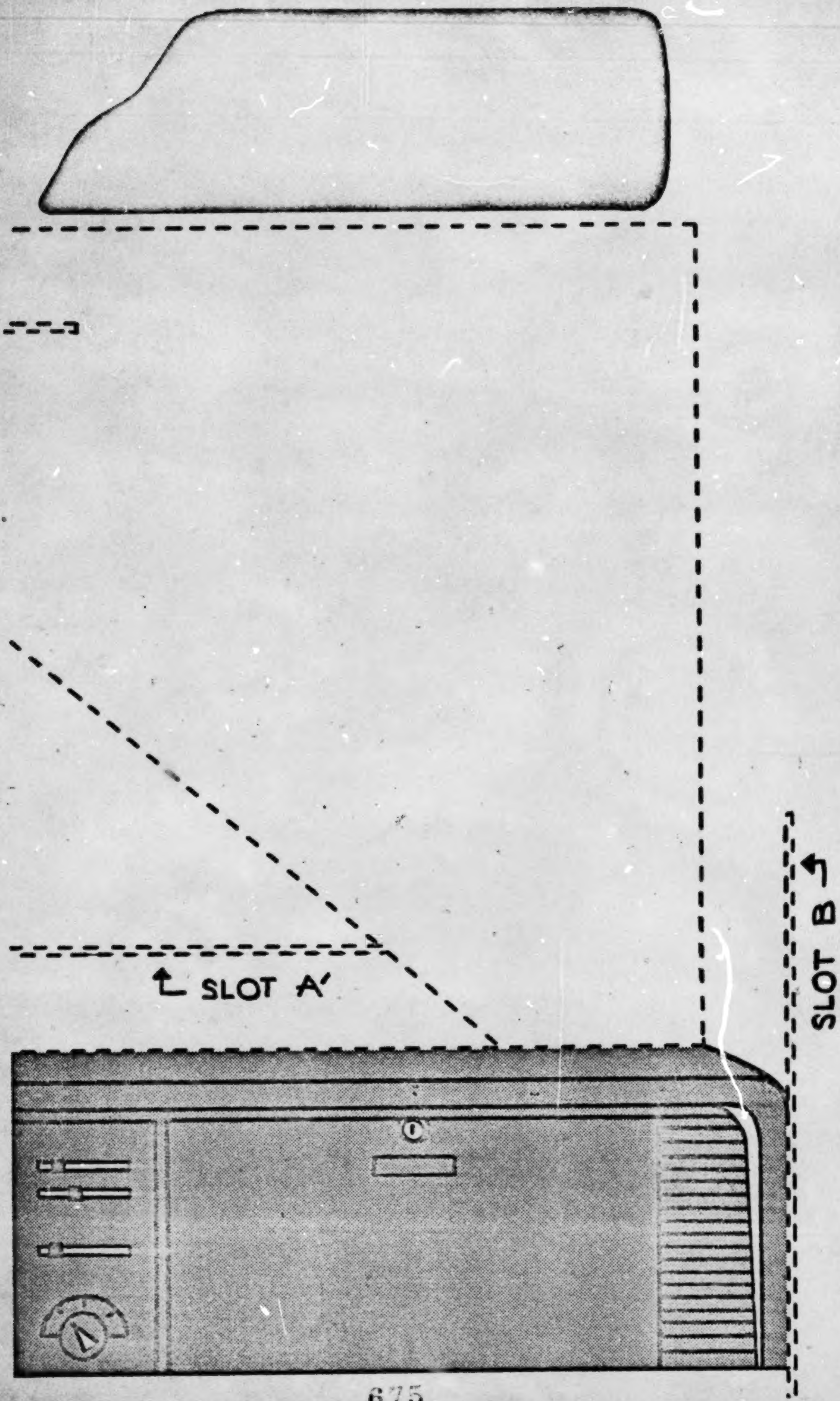


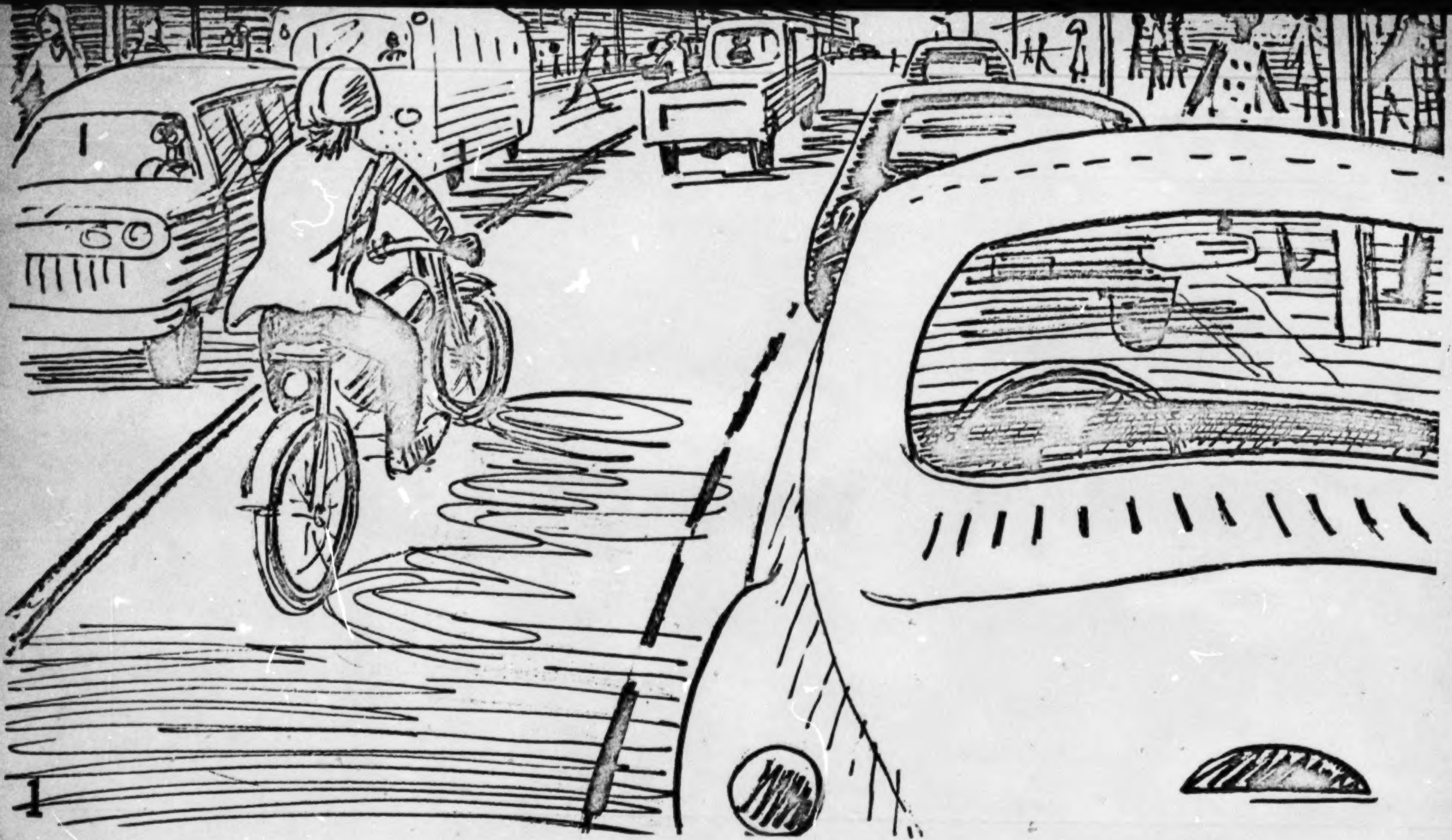
SPREADING WHITE GLUE ON STRIPS ONLY, GLUE FRONT OF VIEW HOLDER TO BACK OF WINDSHIELD.

WAIT UNTIL GLUE IS DRY. ADD SIDE SUPPORTS.

DRIVING VIEW CARDS SLIDE INTO THE SPACE BETWEEN WINDSHIELD AND VIEW HOLDER.


SLOT B'
SLOT A


SLOT A'
SLOT B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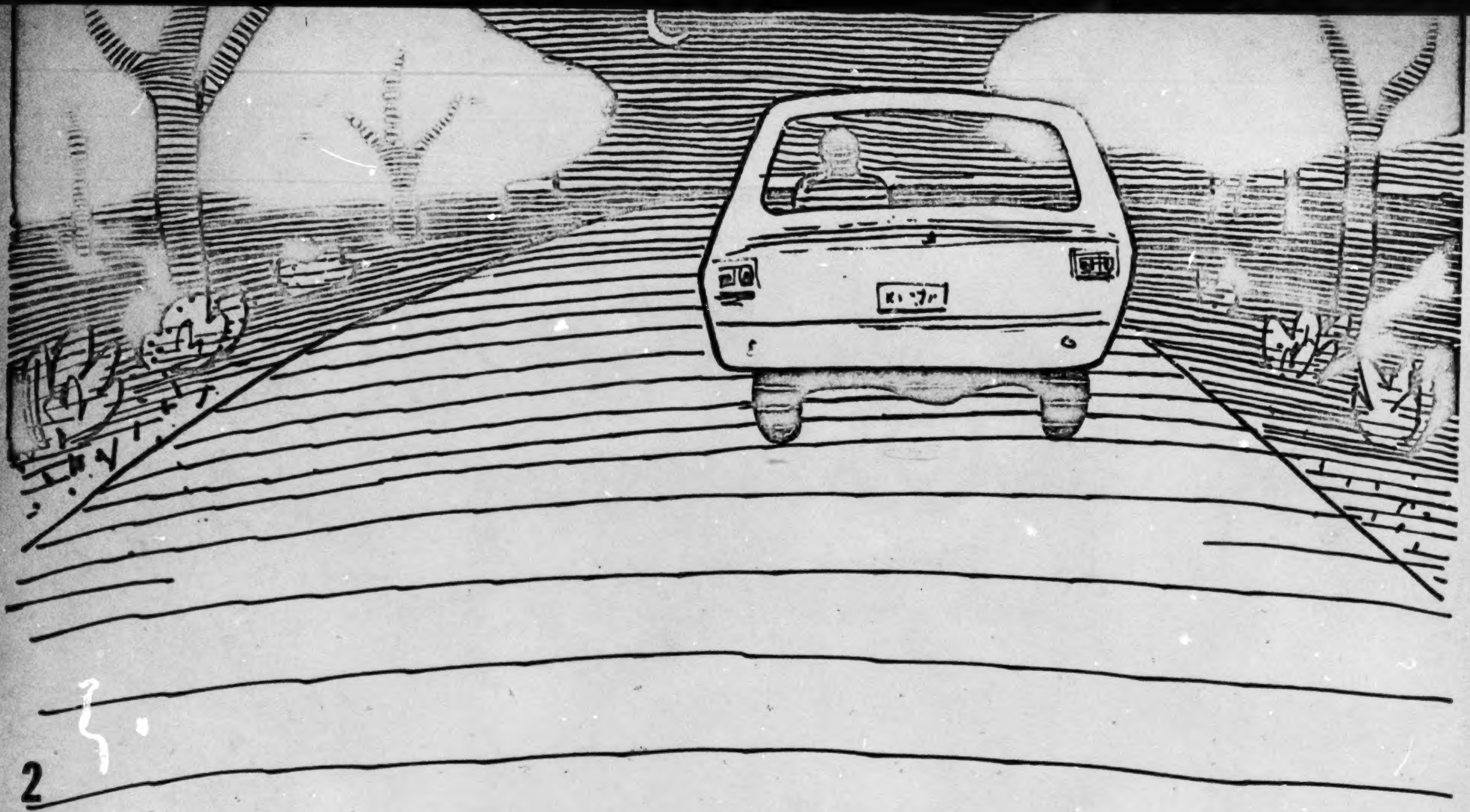

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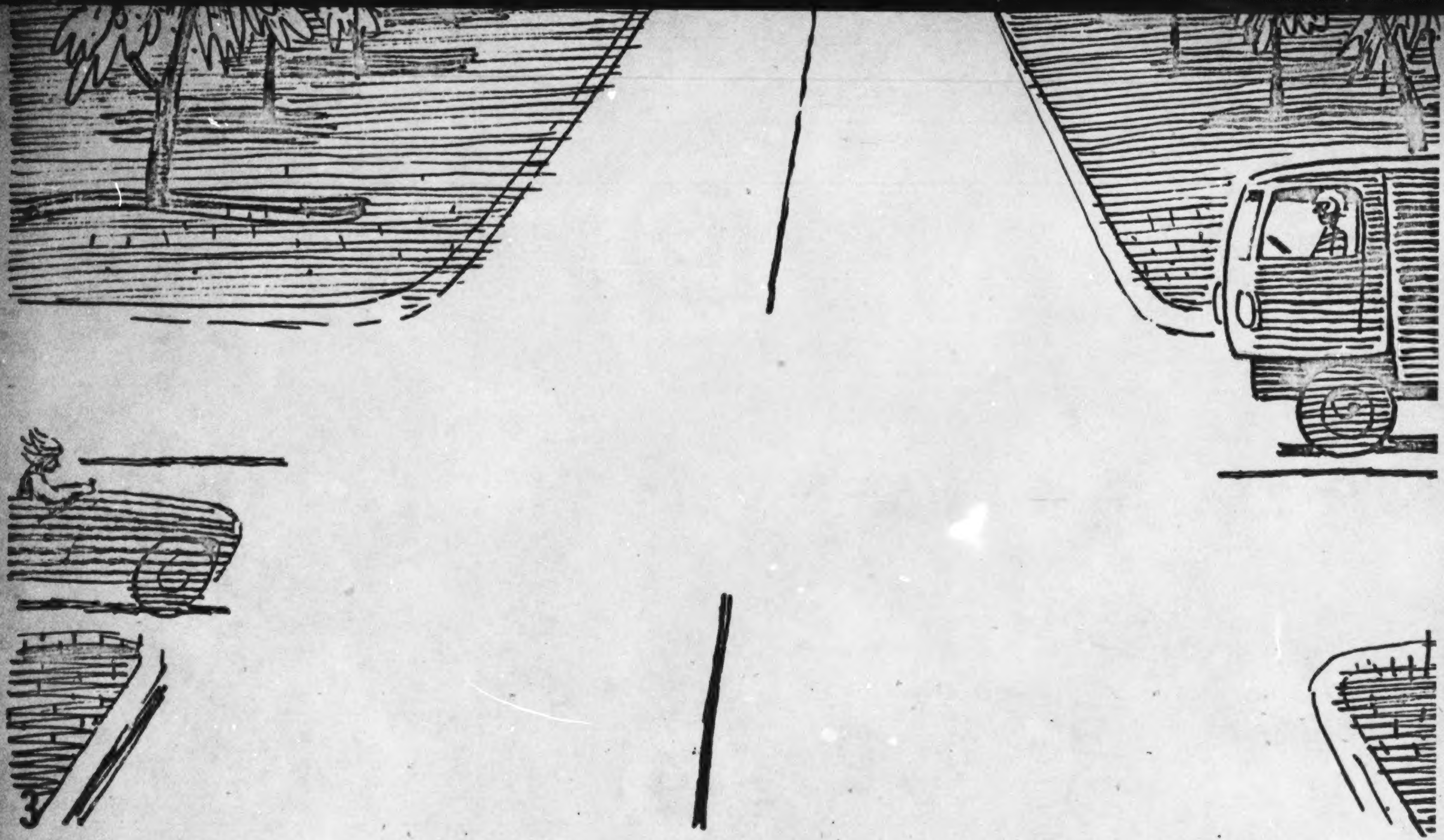
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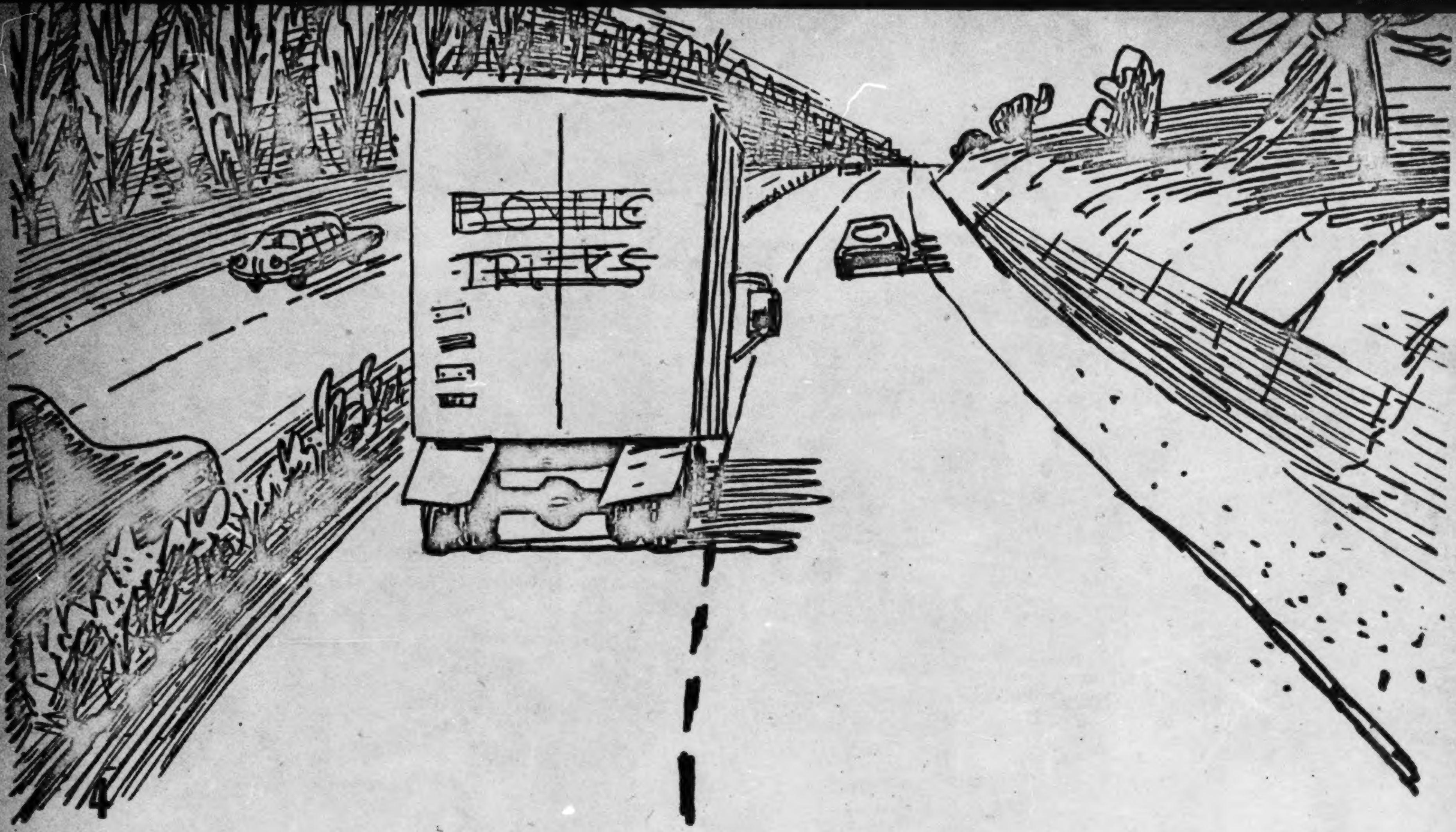
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TRUCKS
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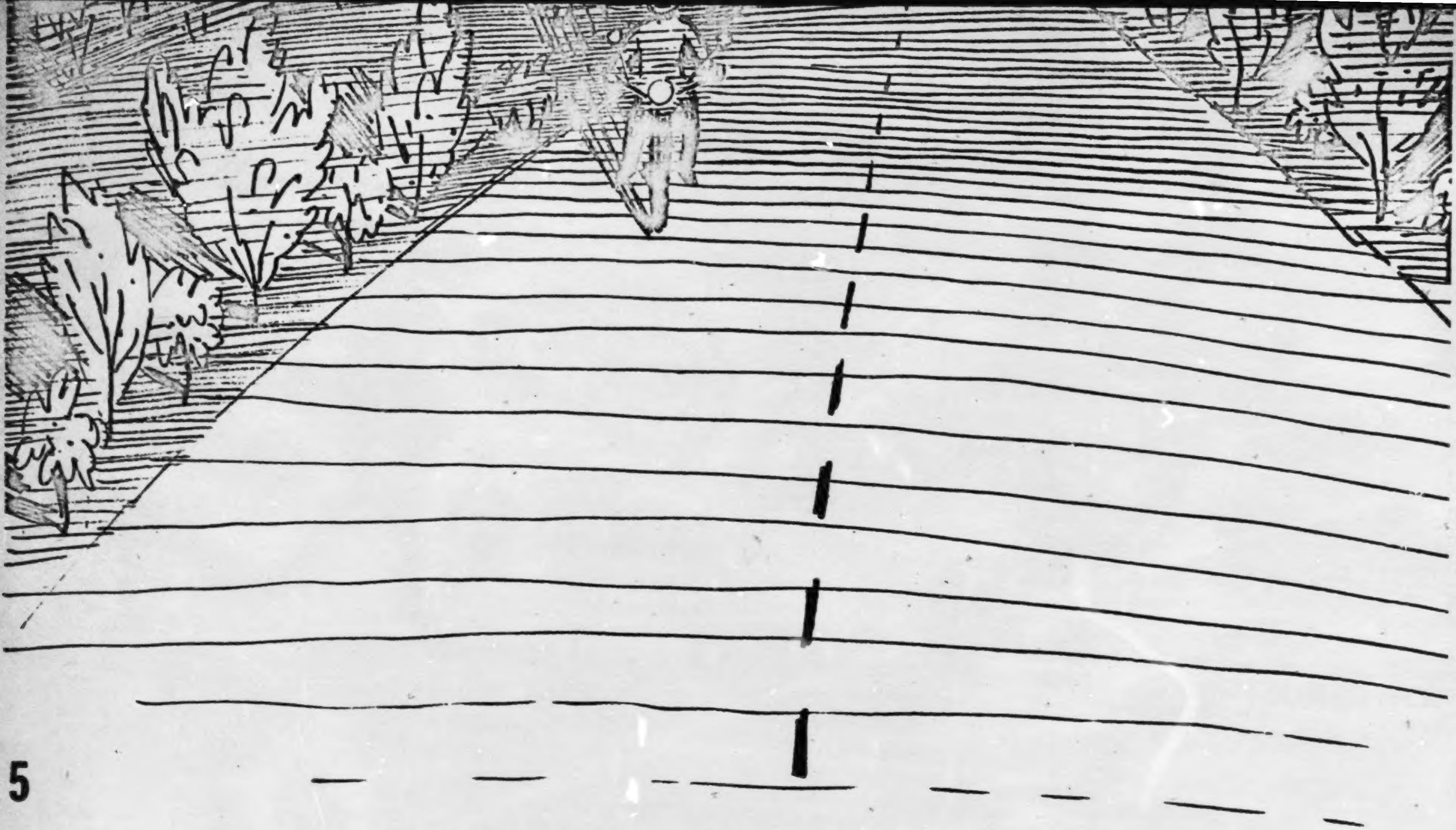

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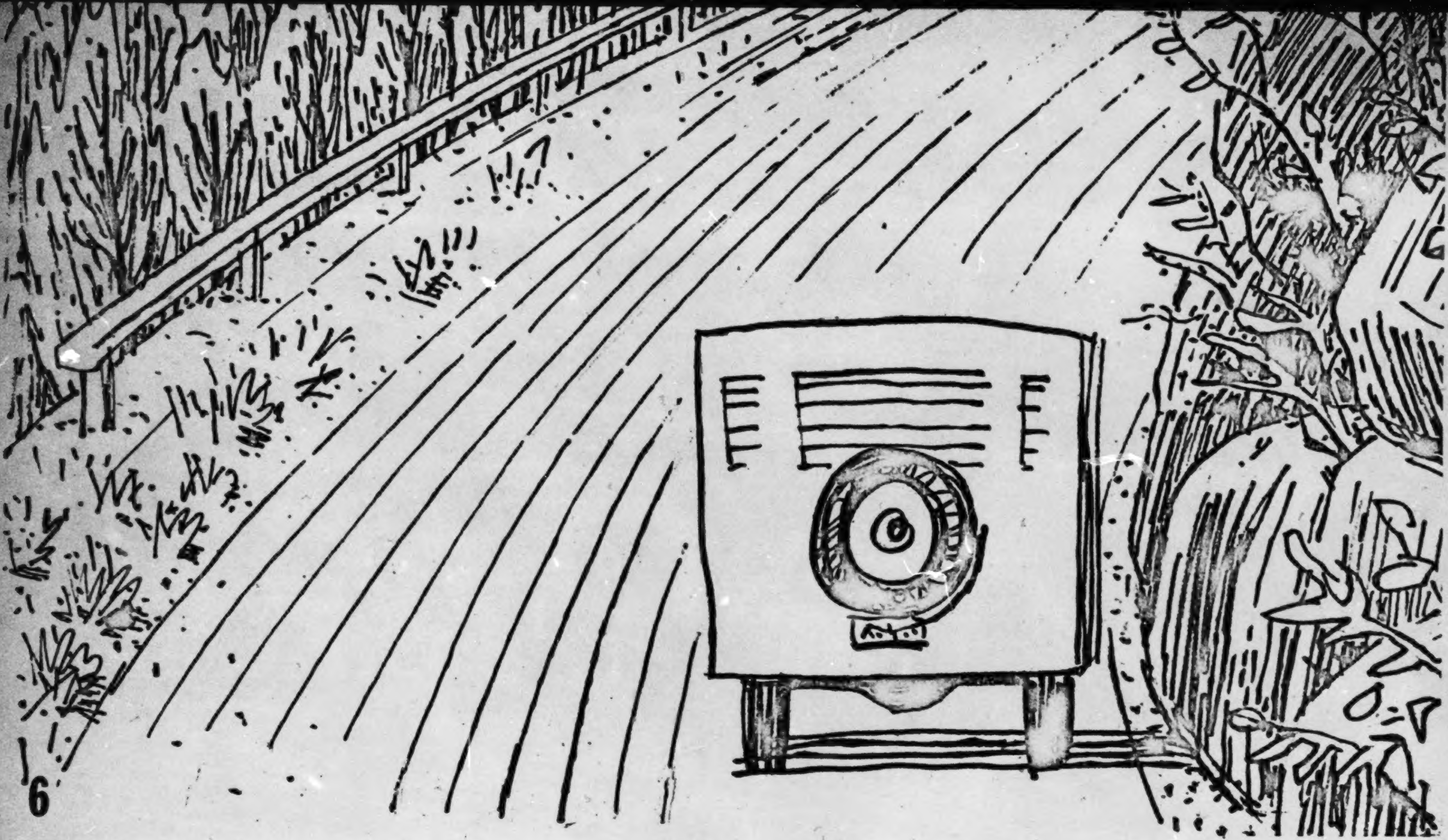

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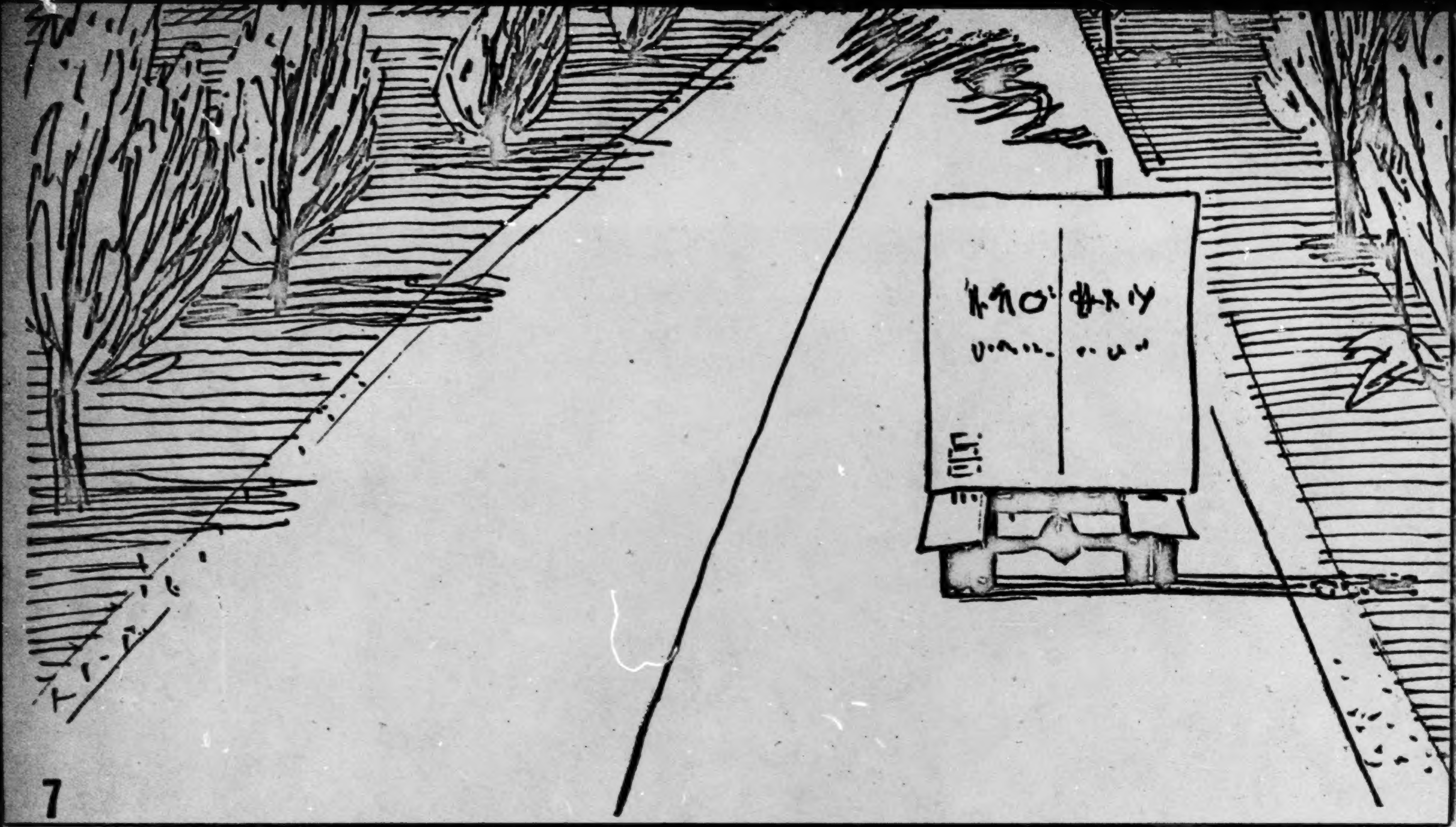

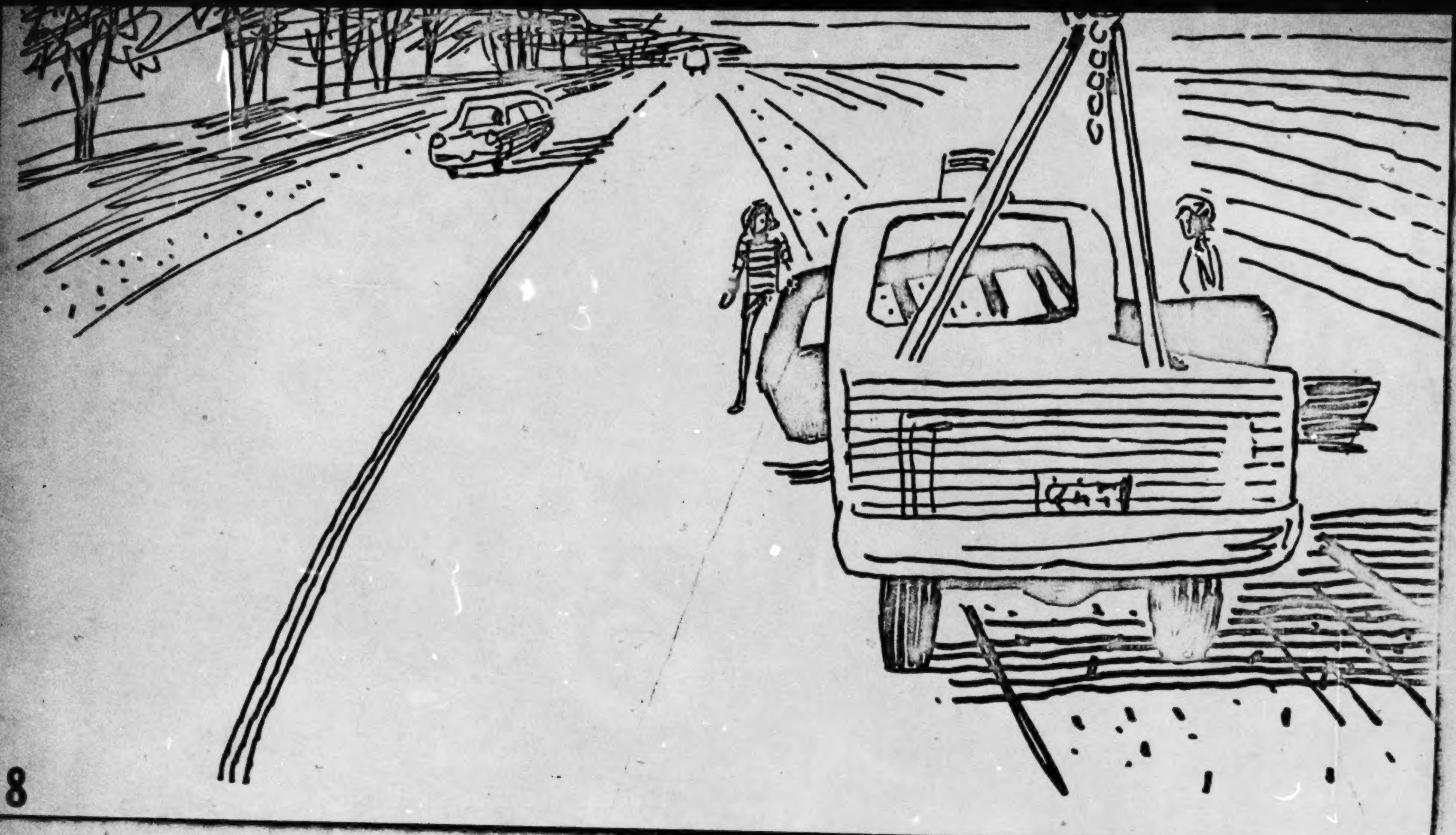

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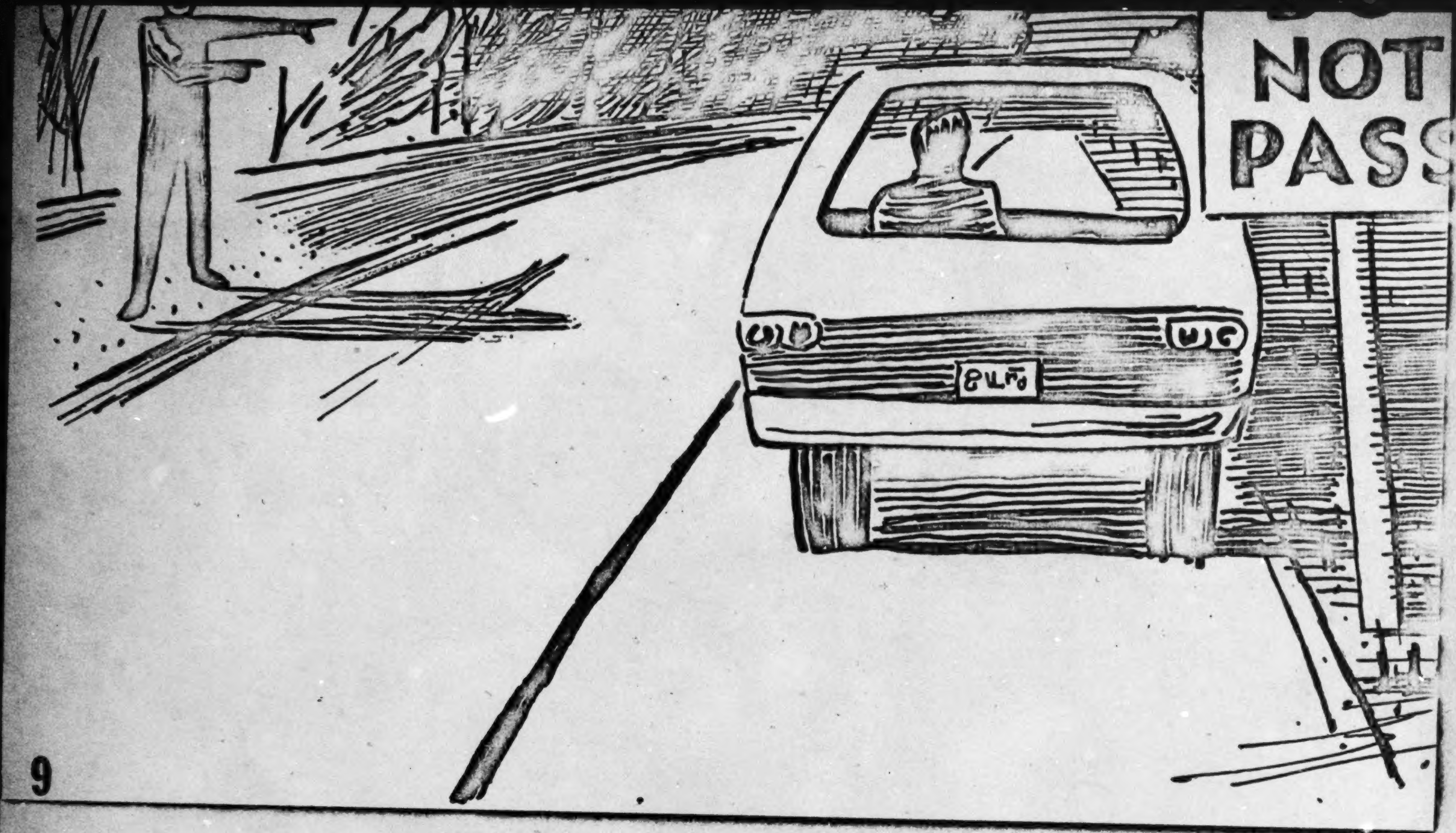

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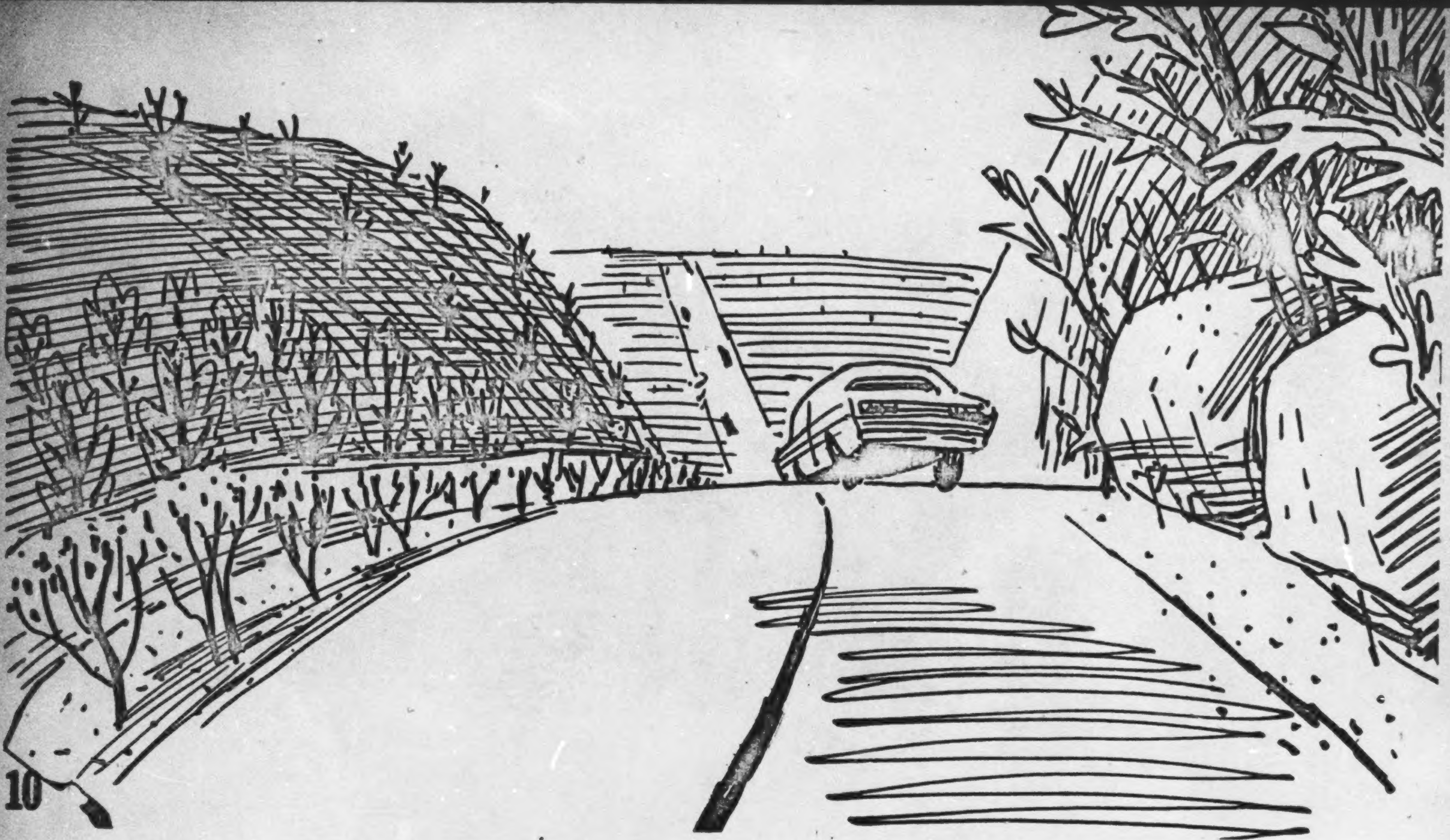

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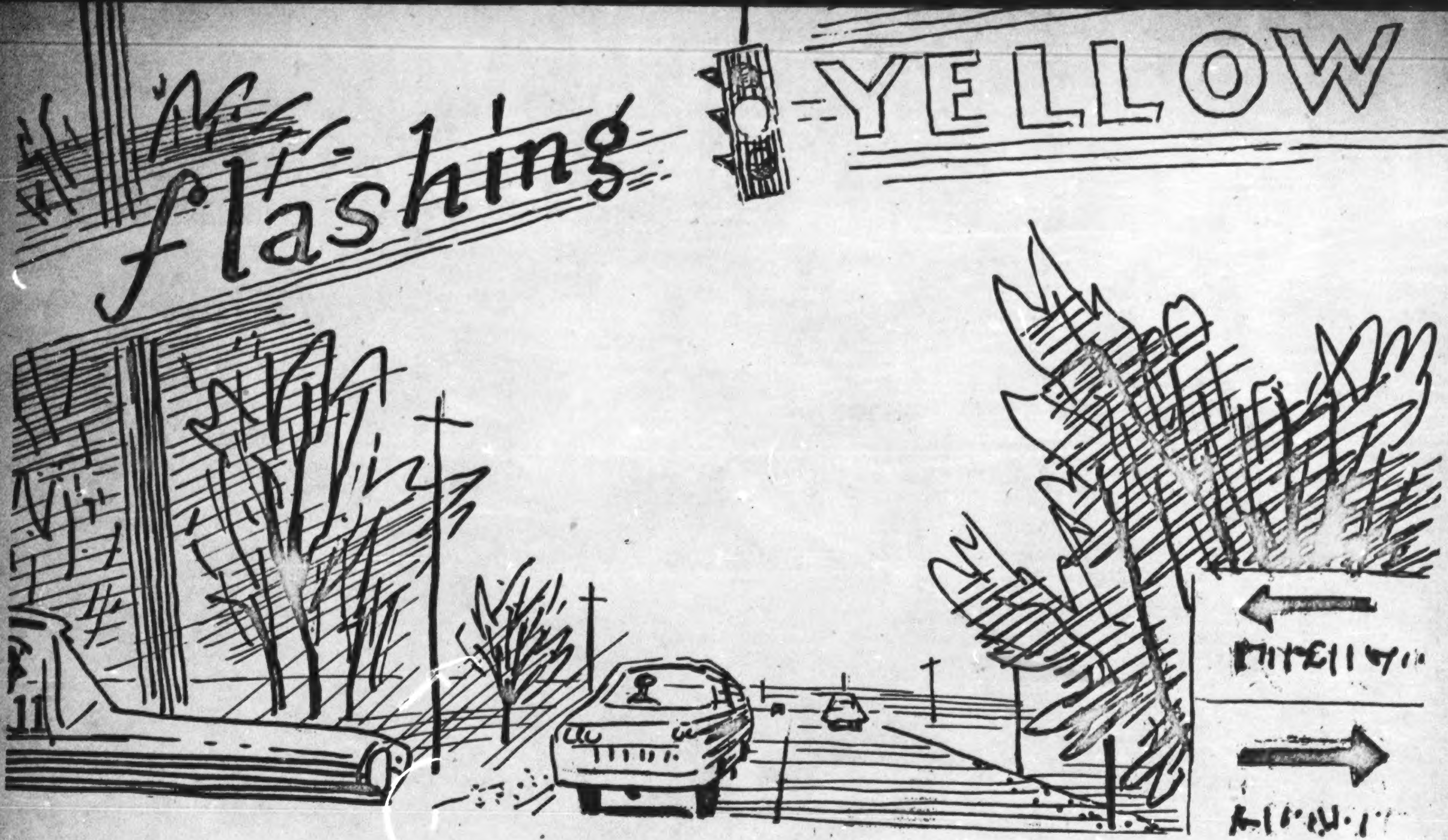
flashing
YELLOW
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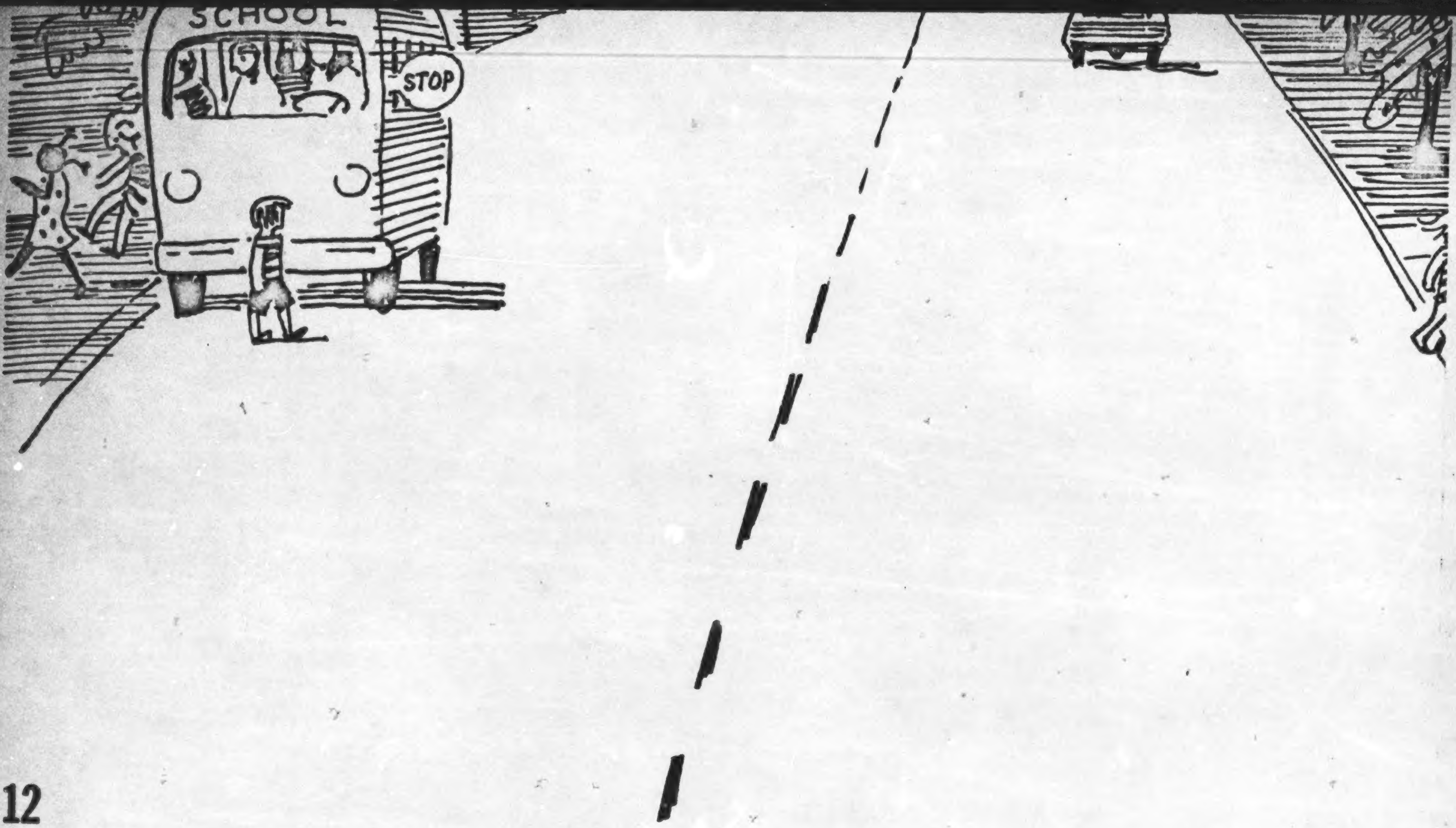
SCHOOL
STOP

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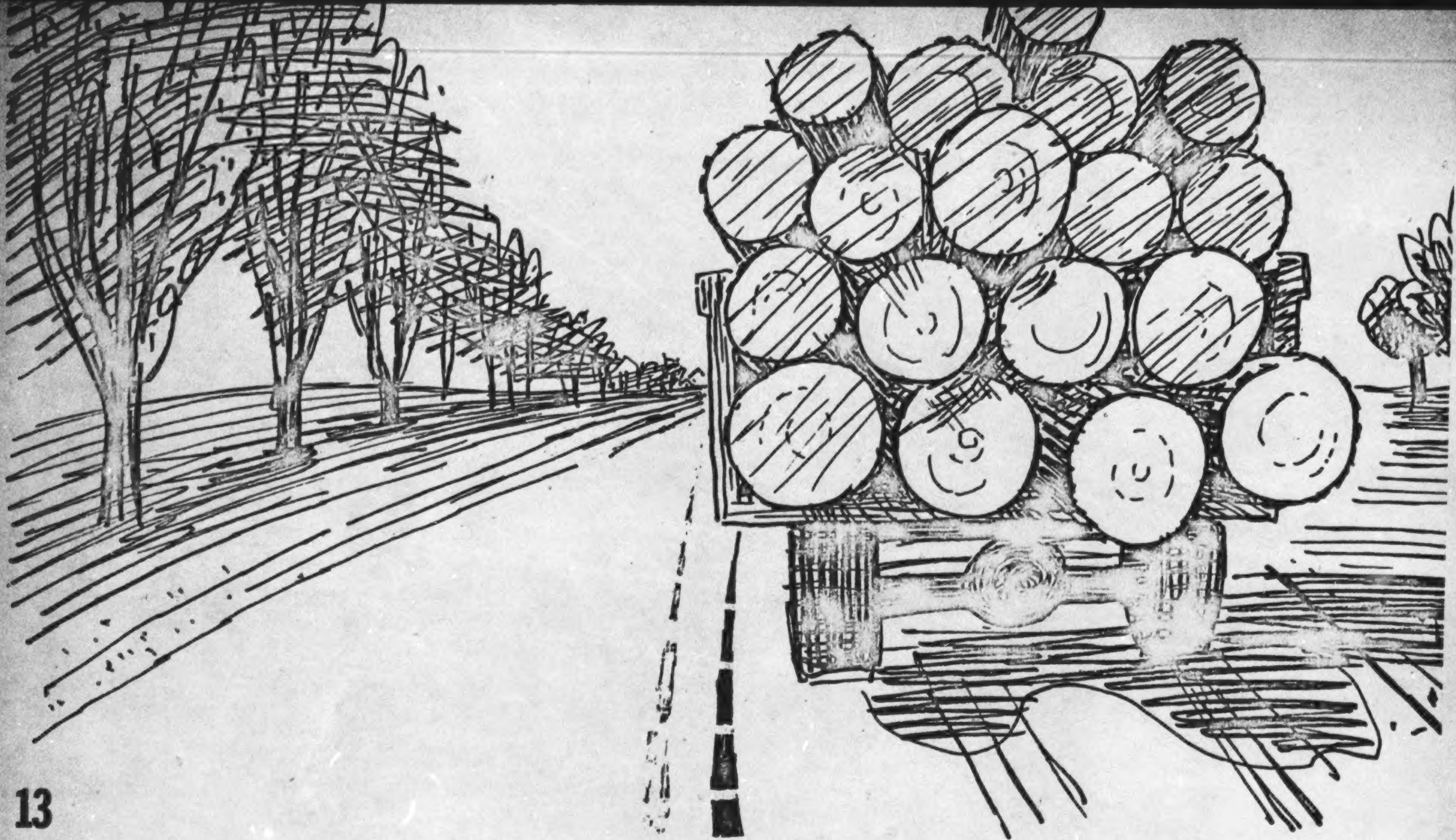

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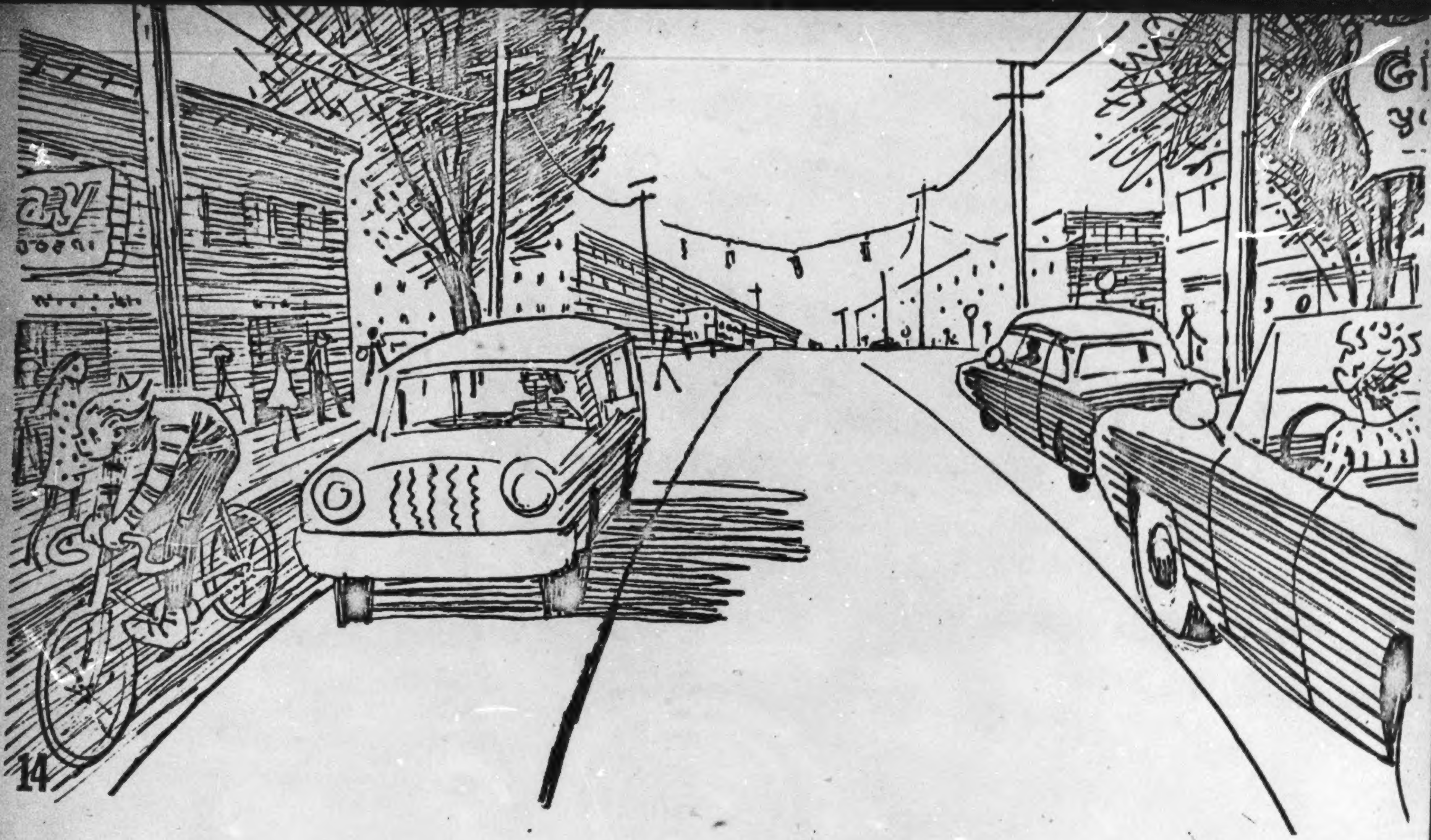

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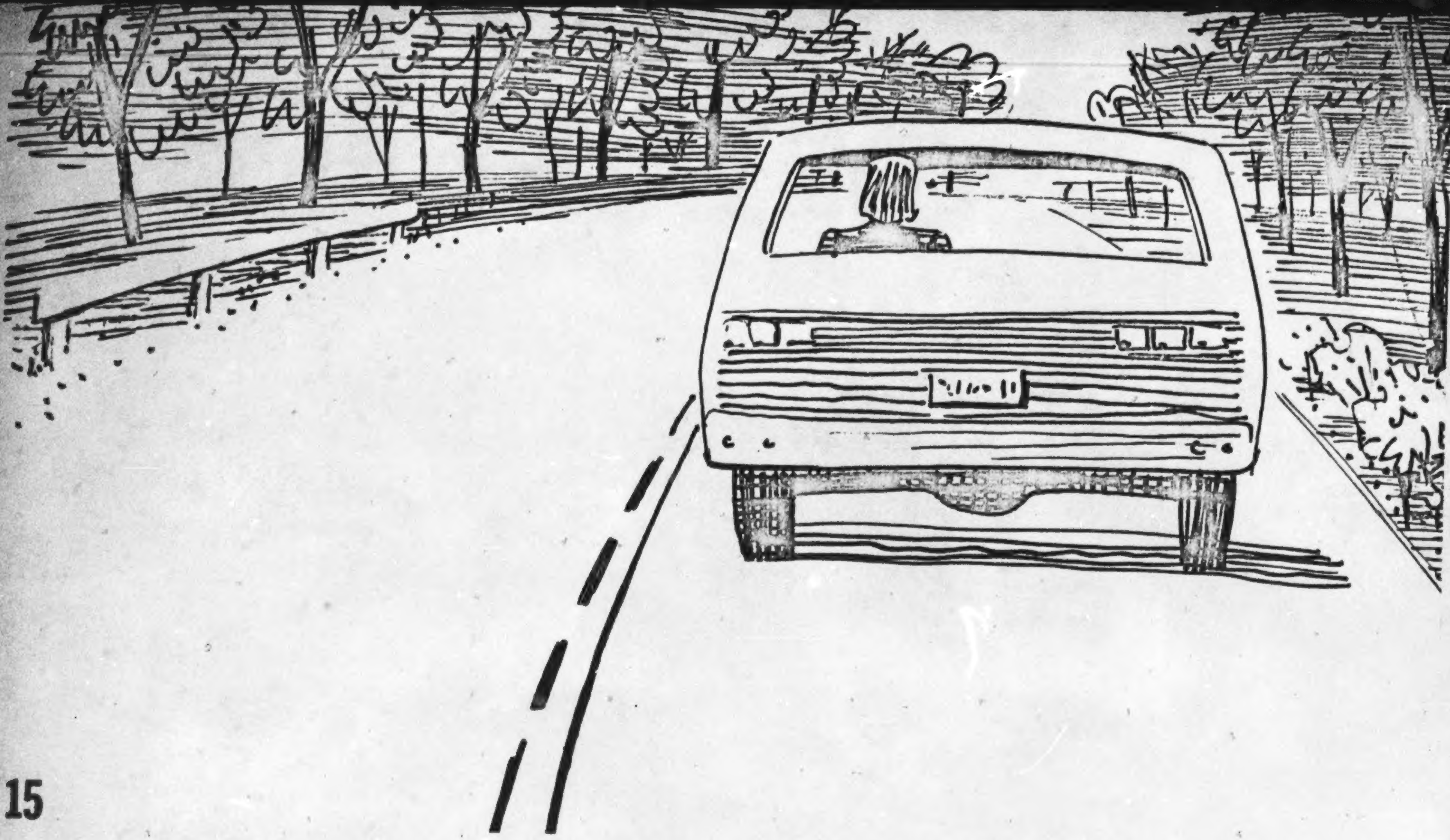

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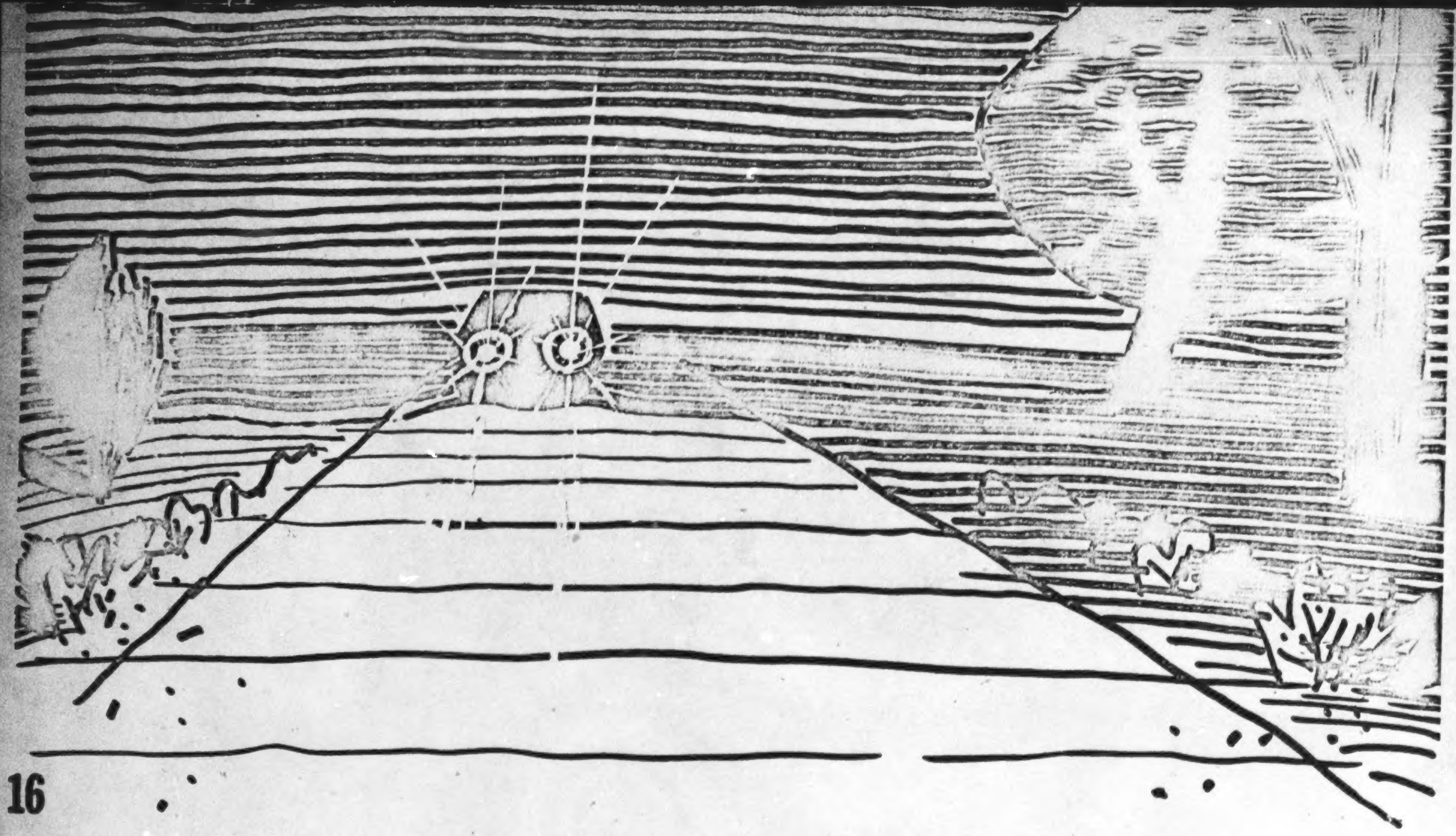

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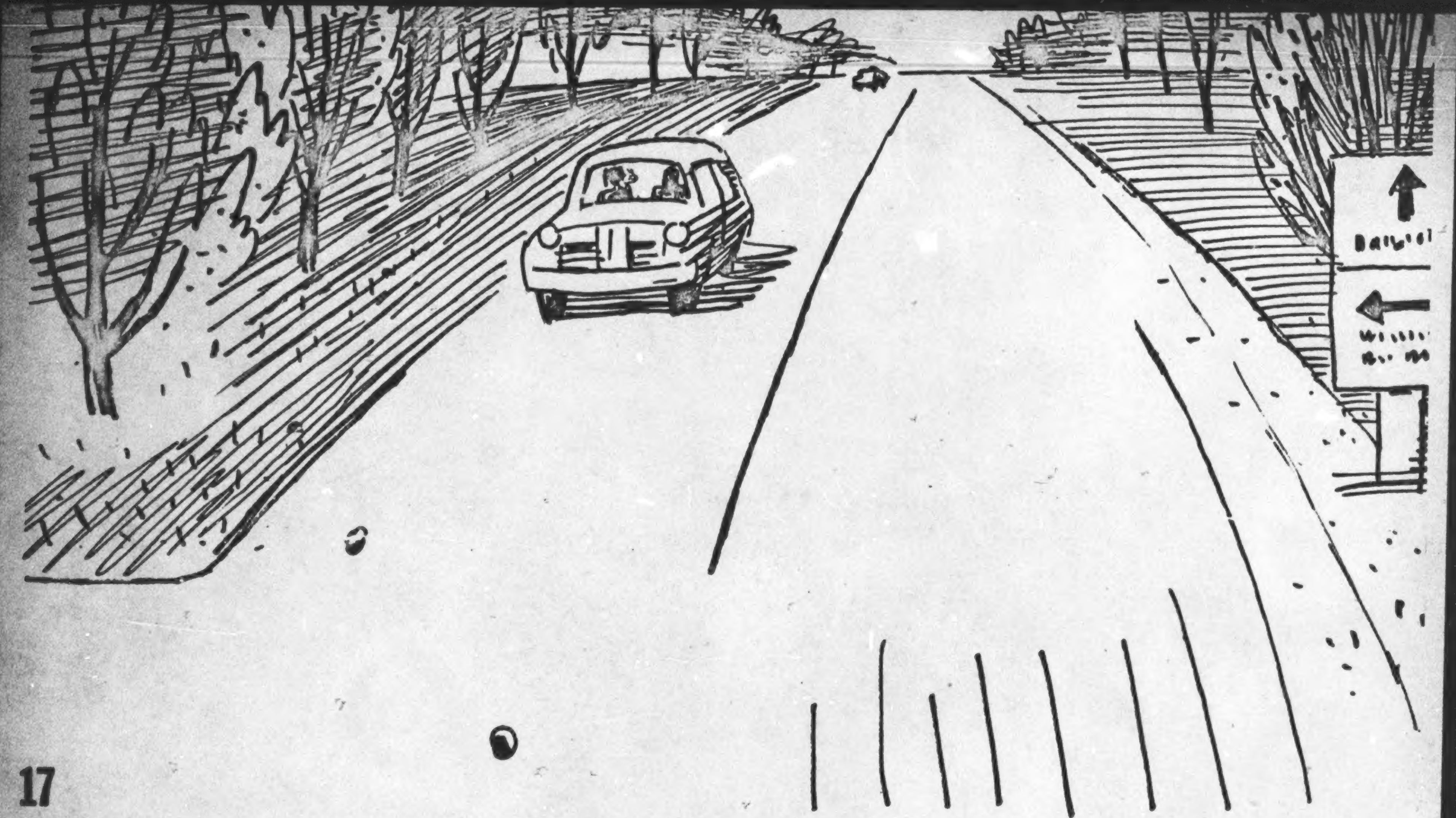

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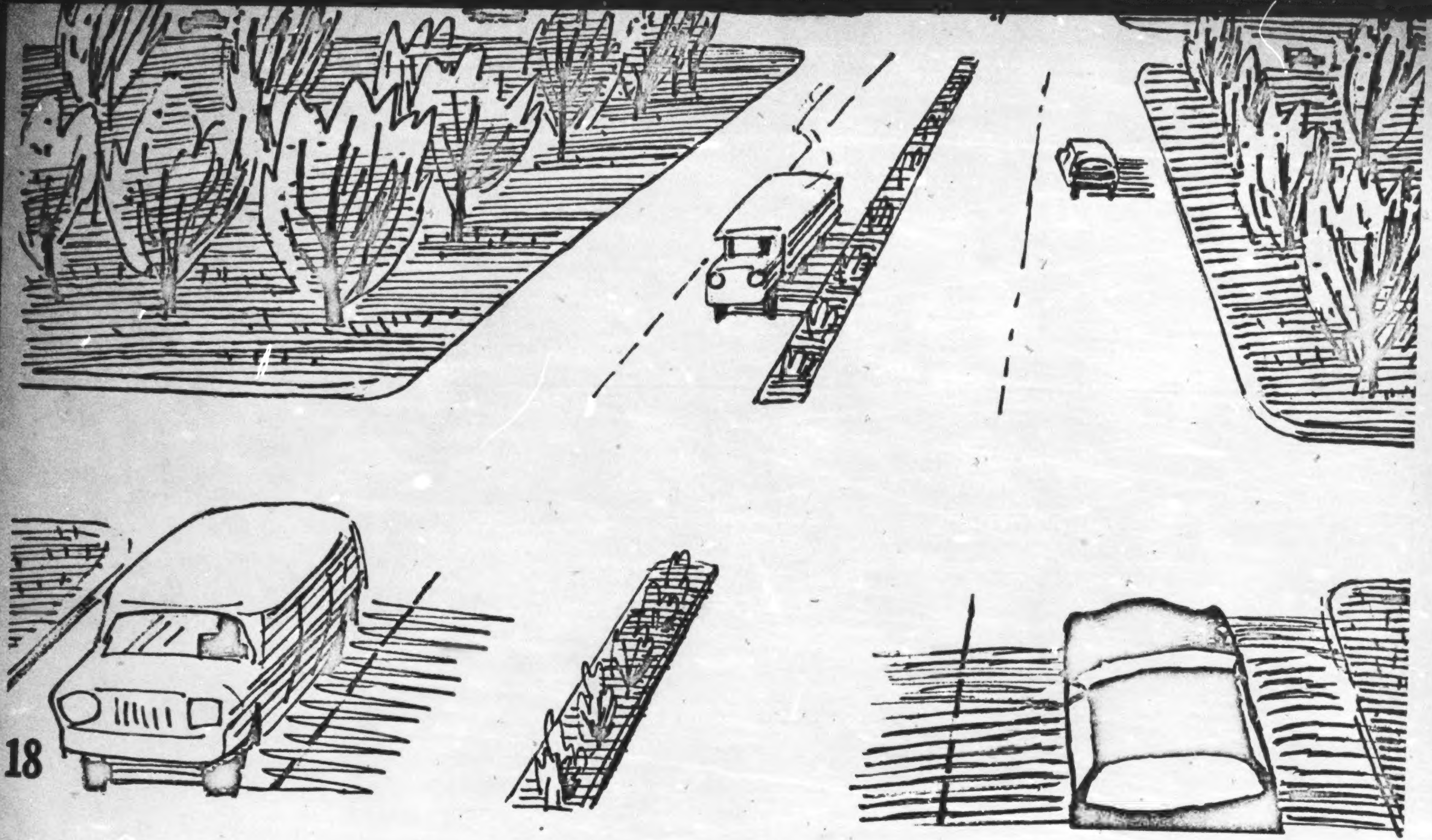

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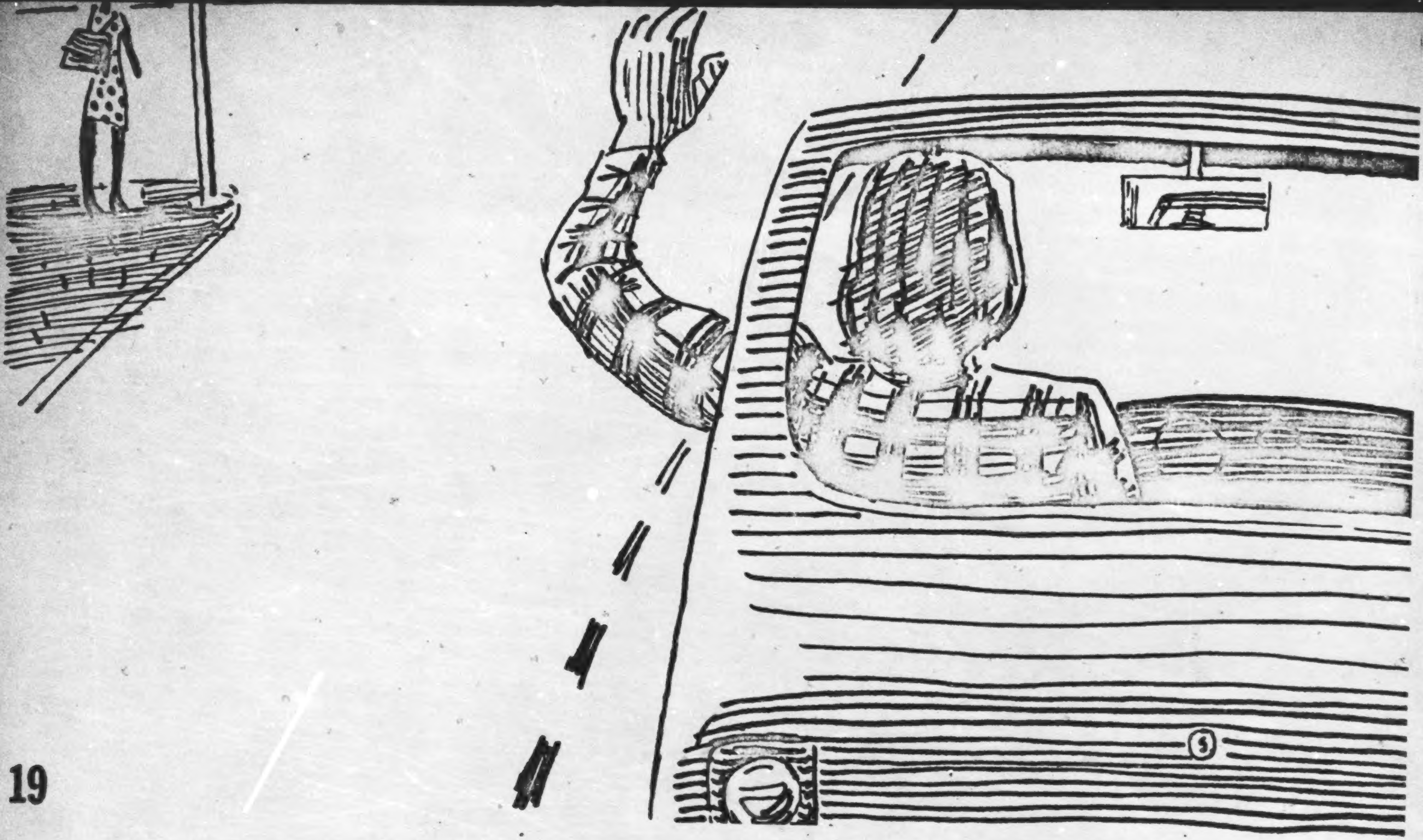

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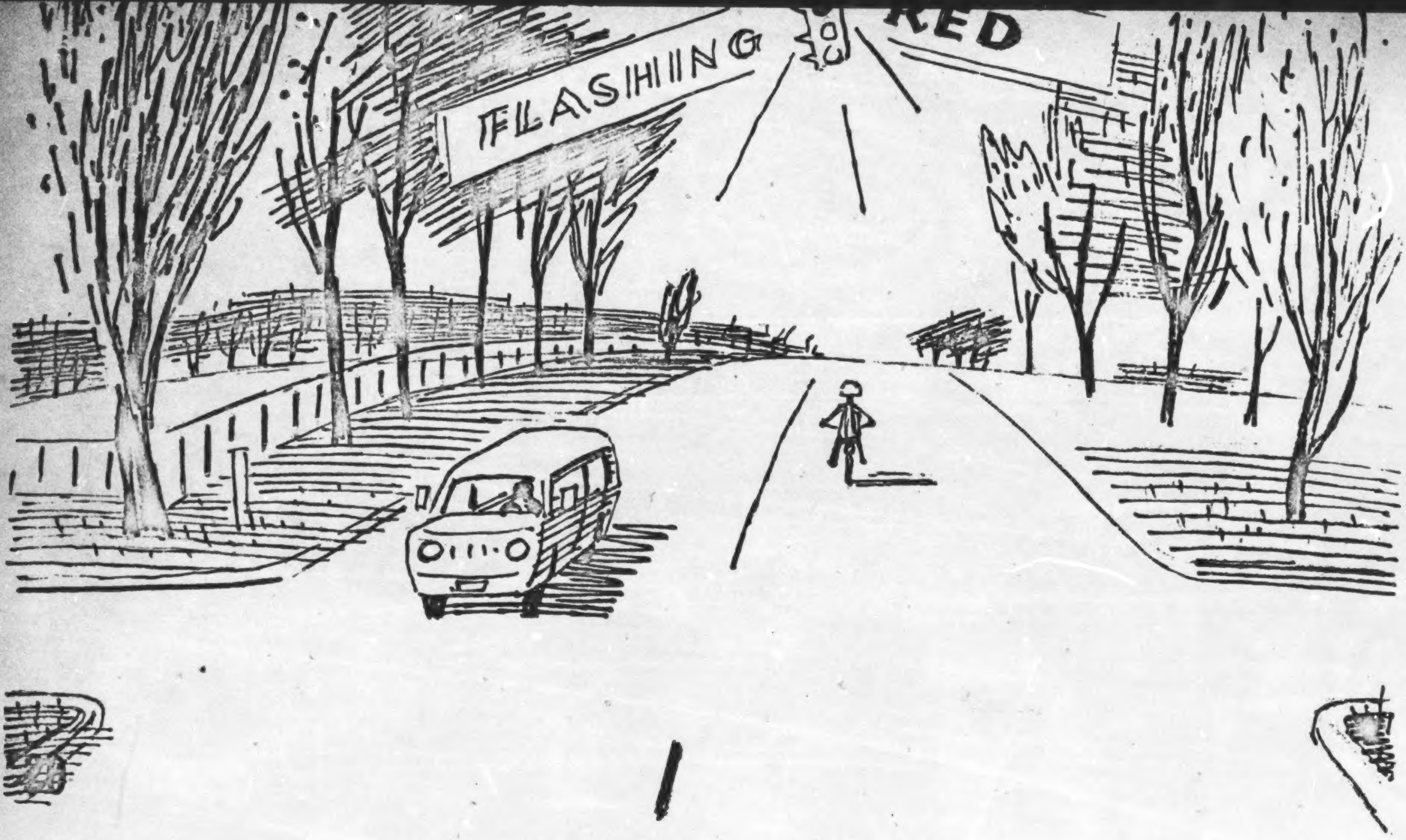
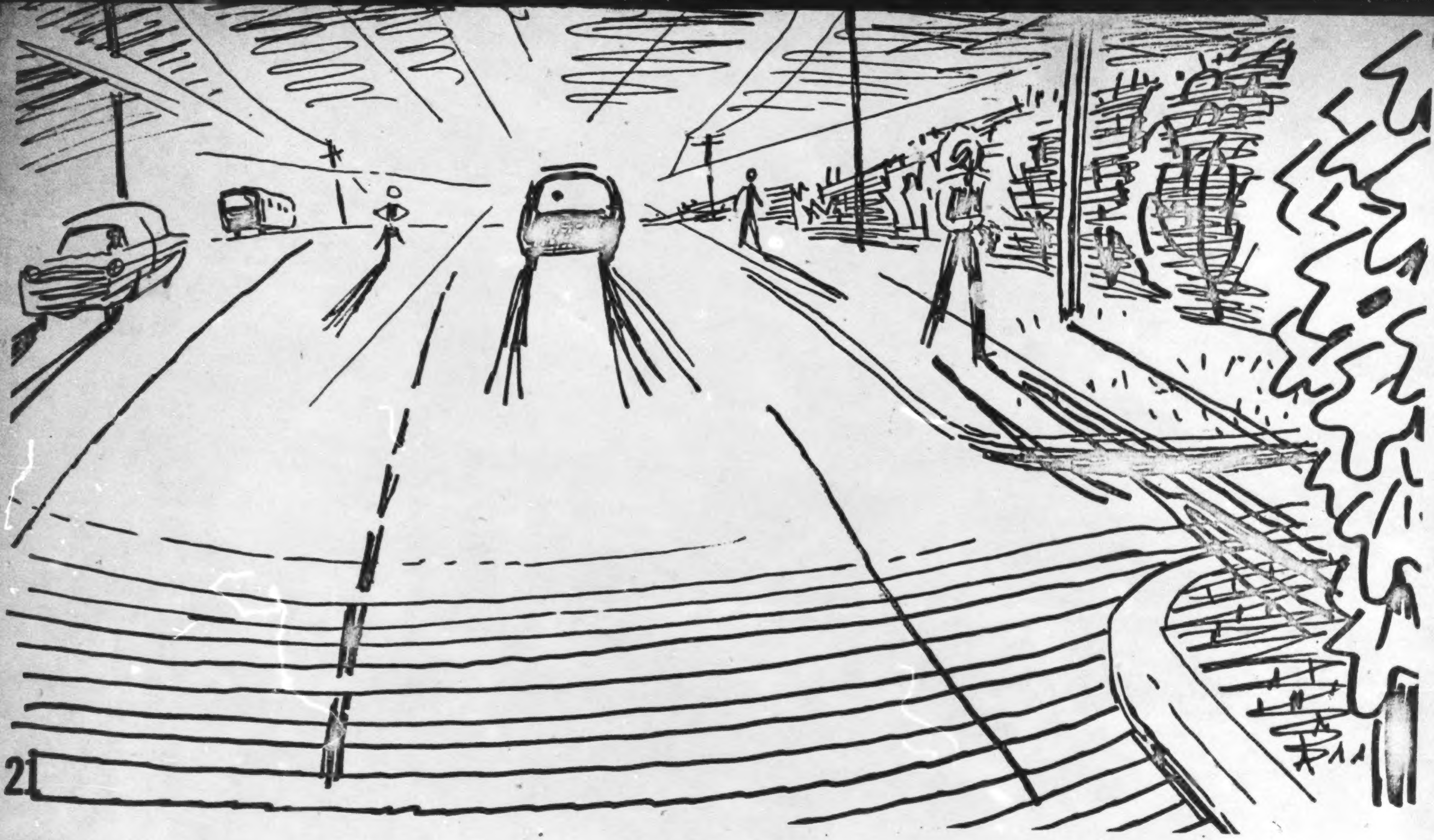

FLASHING
RED

714

715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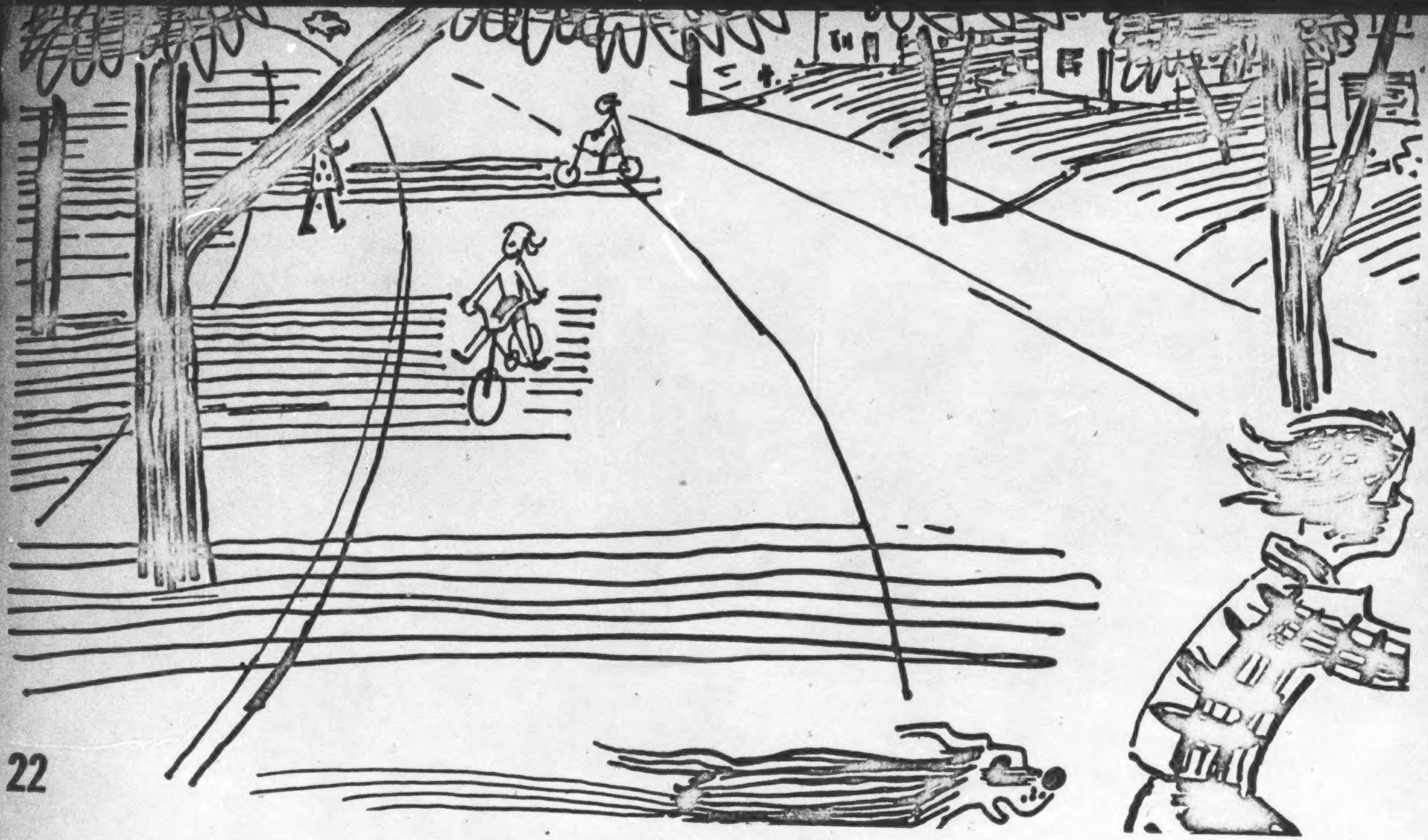

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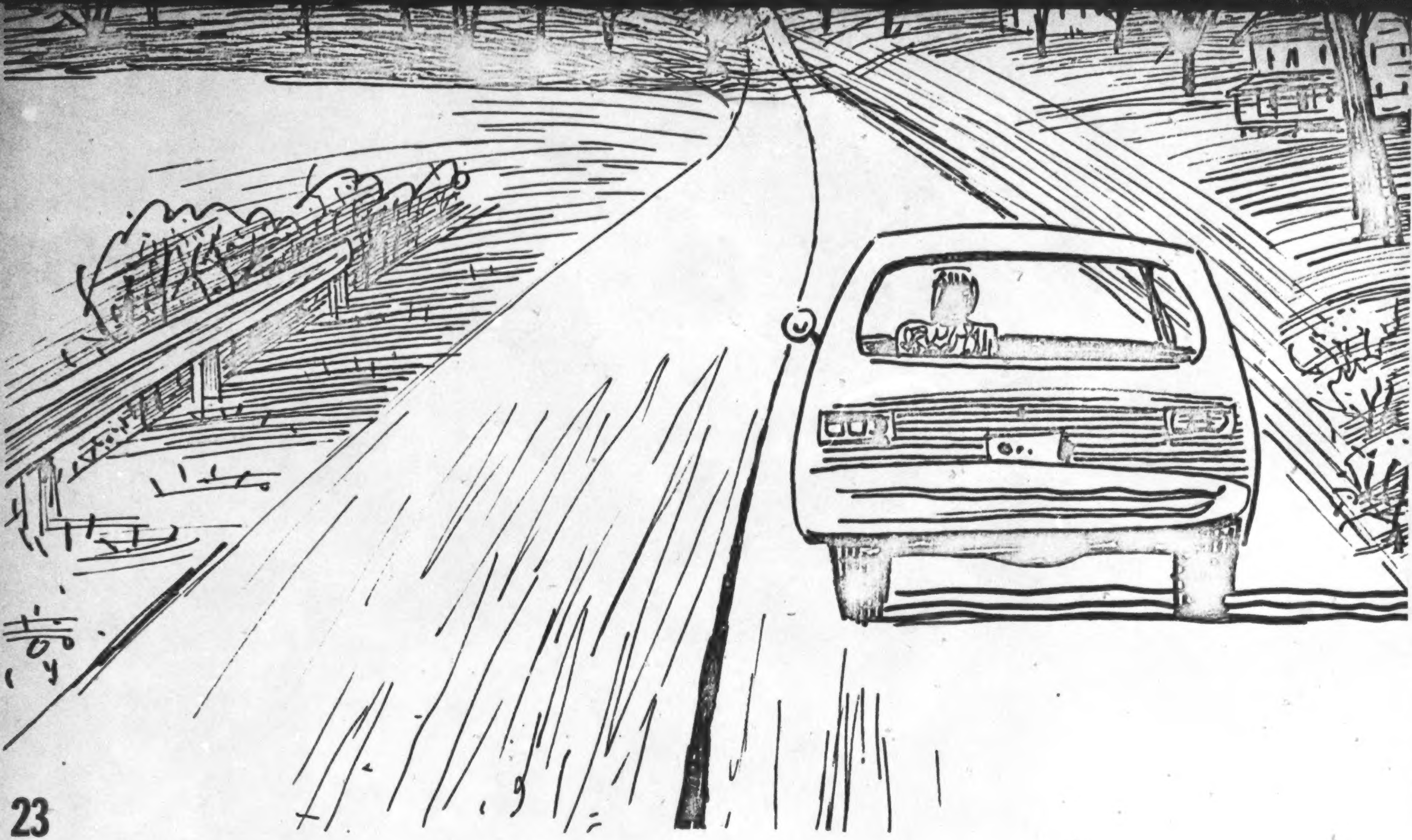

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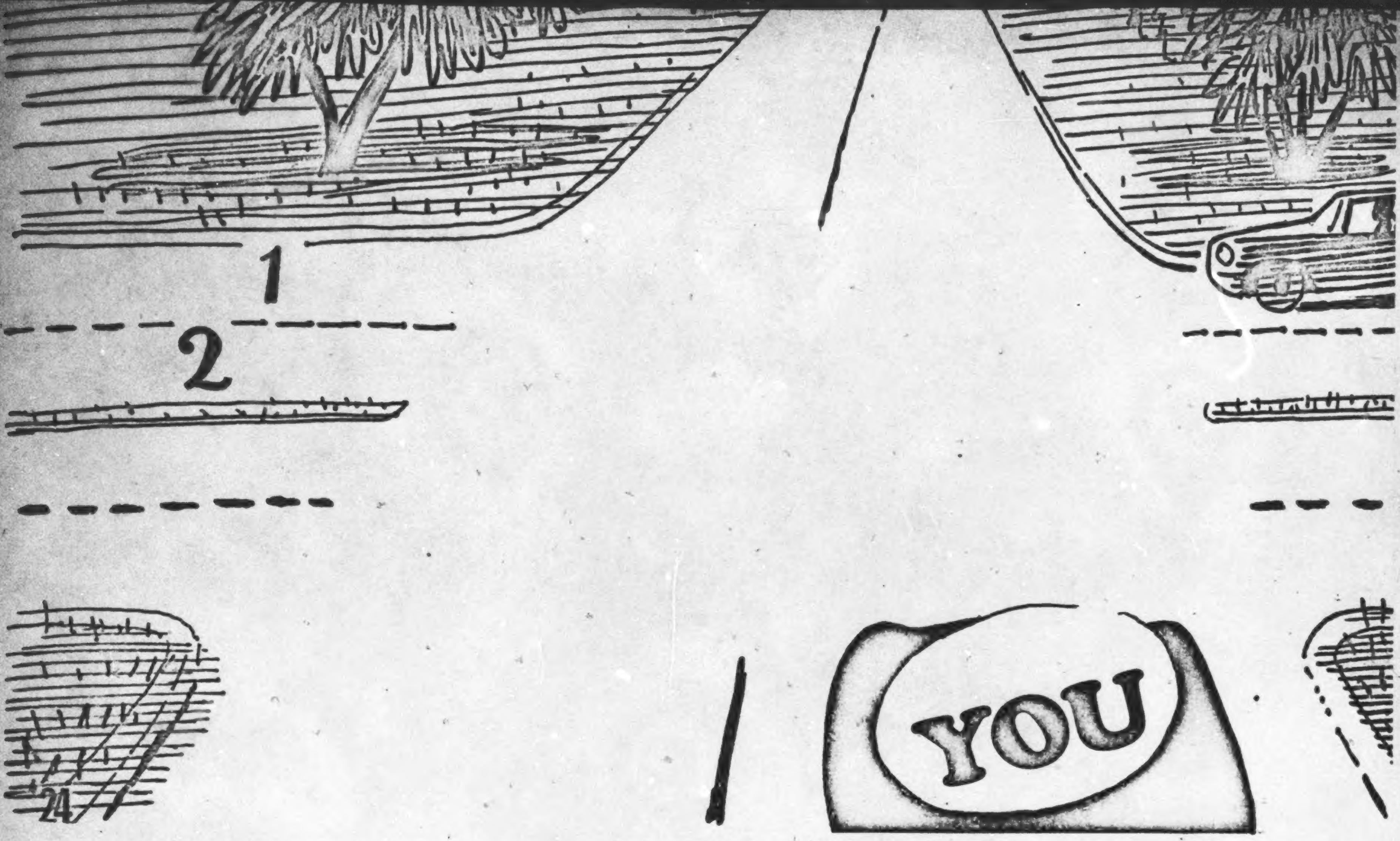
1
2
24
YOU